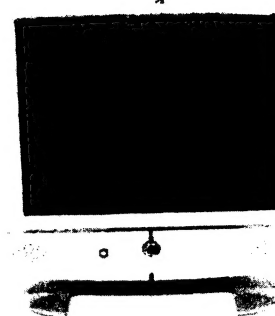


Service
Service
Service



Smart Interface/PnP/Sliding Height Adjustment
High Bright Picture/Auto Picture Adjustment/Wide Viewing Angle



180MT10P/00C
(HIT panel)

Service Manual

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Horizontal frequencies
30 - 80 kHz

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ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST FAMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.

CAUTION: USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING.

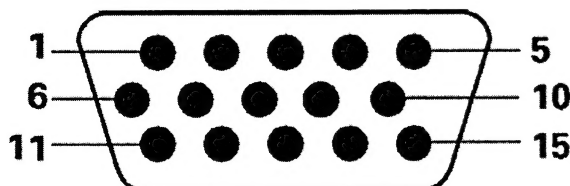
REFER TO BACK COVER FOR IMPORTANT SAFETY GUIDELINES

Technical Specifications

| | |
|-------------------------------|---|
| LCD Panel | : TFT LCD |
| Screen type | : 18.1 " visual |
| Screen dimensions | : 0.2805 x 0.2805 mm |
| Pixel pitch | : 1280 x 1024 pixels |
| LCD Panel type | : R.G.B. Vertical stripe Anti-glare polarizer |
| Effective viewing area | : (H)359.0 x (V)287.2 mm |
| Display Colors | : 8 bits interface (16.7M colors) |
| SCANNING | |
| Horizontal scan range | : 30 kHz to 80 kHz |
| Vertical scan range | : 56 Hz to 75 Hz |
| Video | |
| Video dot rate | : 135MHz |
| input impedance | |
| -Video | : 75 ohms |
| -Sync | : 2 KOhm |
| Input signal levels | : 700m Vpp |
| Synchronization input signals | : Separate sync composite sync |
| Sync polarities | : Positive and negative |
| Input Frequency | |
| SXGA | : 64-80 KHz,Vsync 60-75 Hz(N.I.) |
| XGA Hsync | : 48-61 KHz,Vsync 60-75Hz(N.I.) |
| SVGA Hsync | : 35-50 KHz,Vsync 56-75Hz(N.I.) |
| VGA Hsync | : 31-38 KHz,Vsync 60-75Hz(N.I.) |
| Video interface | : D-Sub,S-Video,TV-RF, SCART or composite and components video |
| AUDIO | |
| Input Level for PC/SVHS/SCART | : 500mV nominal |
| Headphone out signal level | : 4mW max. |
| Loudspeaker | : 5 W Stereo Audio(2.5W/chanel RMS x2,200Hz~10KHz,4ohm,10%THD) |
| OPTICAL CHARACTERISTICS | |
| Contrast ratio | : 300:1 (typ.) |
| Brightness | : 300 cd/m2(typ.) |
| Peak contrast angle | : 6 o'clock |
| White Chromacity | : x:0.281 y : 0.311 (at 9300° K) x:0.312 y : 0.338 (at 6500° K) |
| Viewing angle (C/R>=10) | : Upper>=85° (typ.)Lower>=85° (type) Left and Right >=85° (typ.) |
| Response time | : <= 30ms(typ.) |
| Resolution and Preset Modes | |
| Maximum | : 1024 x 1024 at 75Hz |
| Recommended | : 1024 x 1024 at 60Hz |
| Physical Characteristics | |
| Dimensions(WxHxD) | : 452 x 452 x 200 mm (incl. Pedestal) |
| Weight (monitor only) | : 6.3 kg |
| Tilt (Forward/Backward) | : -0° / 20° |
| Power supply | : 100 - 240 VAC, 50/60Hz |
| Power consumption | : 68 W (typ.) |
| Temperature (operating) | : 5 C to 35 C |
| Relative Humidity | : 20% to 80% |
| System MTBF | : 50K Hrs |

Pin Assignment

- The 15-pin D-sub connector (male) of the signal cable



| Pin No. | Assignment | Pin No. | Assignment |
|---------|--------------------------------------|---------|--------------------------------------|
| 1 | Red video input | 9 | DDC+5V |
| 2 | Green video input | 10 | Logic ground |
| 3 | Blue video input | 11 | Identical output connected to pin 10 |
| 4 | Identical output connected to pin 10 | 12 | Serial data line (SDA) |
| 5 | Cable detect | 13 | H. Sync / H+V |
| 6 | Red video ground | 14 | V. Sync |
| 7 | Green video ground | 15 | Data clock line (SCL) |
| 8 | Blue video ground | | |

Automatic Power Saving

If you have VESA's DPMS compliance display card or software installed in your PC, the monitor can automatically reduce power consumption when power saving function active. And if an input from keyboard, mouse or other input devices is detected, the monitor will automatically "wake up". The following table shows the power consumption and signaling of this automatic power saving feature :

| Power Management Definition | | | | | |
|-----------------------------|---------|--------|--------|------------|----------------|
| VESA's mode | VIDEO | H-SYNC | V-SYNC | POWER USED | LED COLOR |
| ON | Active | Yes | Yes | 68W(typ.) | Green |
| Stand-by | Blanked | No | Yes | < 2 W | Blinking Green |
| Suspend | Blanked | Yes | No | < 2 W | Blinking Green |
| OFF | Blanked | No | No | < 2 W | Blinking Green |

This monitor is ENERGY STAR® compliant. As an ENERGY STAR® Partner, PHILIPS has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

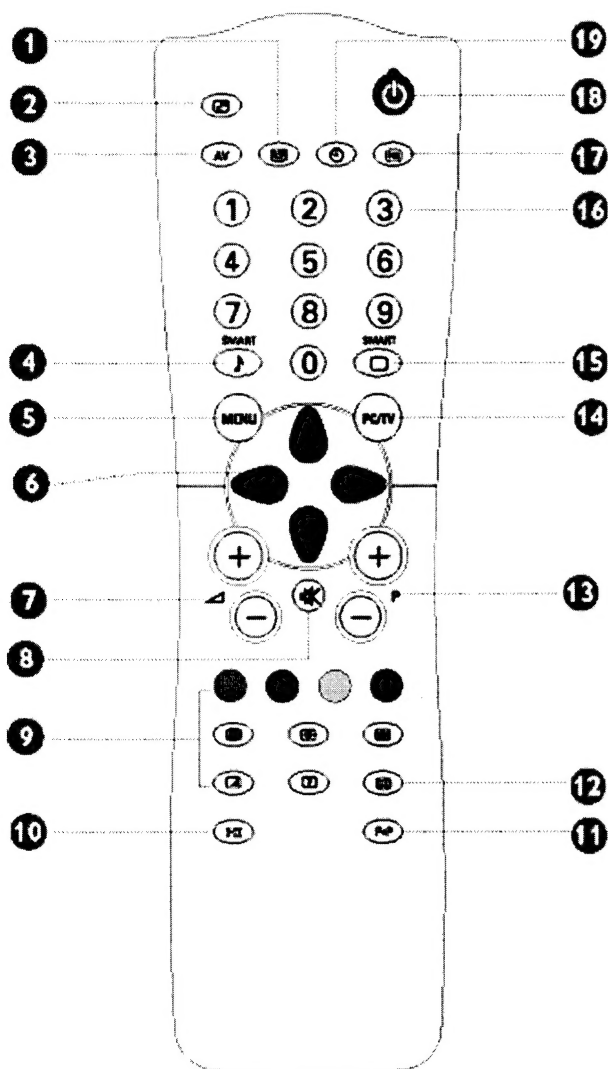
17 Factory preset mode:

| Mode | Resolution | H. freq. / V. freq | Standard |
|------|-------------|--------------------|-----------|
| 1. | 640 x 350 | 31.469KHz/70.087Hz | VGA |
| 2. | 720 x 400 | 31.469KHz/70.087Hz | VGA |
| 3. | 640 x 480 | 31.469KHz/59.940Hz | VGA |
| 4. | 640 x 480 | 35.000KHz/66.667Hz | Macintosh |
| 5. | 640 x 480 | 37.861KHz/72.809Hz | VESA |
| 6. | 640 x 480 | 37.500KHz/75.000Hz | VESA |
| 7. | 800 x 600 | 35.156KHz/56.250Hz | VESA |
| 8. | 800 x 600 | 37.879KHz/60.317Hz | VESA |
| 9. | 800 x 600 | 48.077KHz/72.188Hz | VESA |
| 10. | 800 x 600 | 46.875KHz/75.000Hz | VESA |
| 11. | 832 x 624 | 49.700KHz/75.000Hz | Macintosh |
| 12. | 1024 x 768 | 48.363KHz/60.004Hz | VESA |
| 13. | 1024 x 768 | 56.476KHz/70.069Hz | VESA |
| 14. | 1024 x 768 | 60.023KHz/75.029Hz | VESA |
| 15. | 1152 x 870 | 68.7KHz/75.029Hz | VESA |
| 16. | 1280 x 1024 | 64.0KHz/60.0Hz | VESA |
| 17. | 1280 x 1024 | 80.0KHz/75.029Hz | VESA |

TV control

Go to cover page

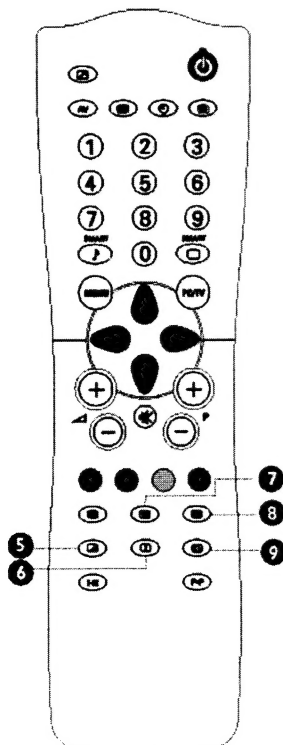
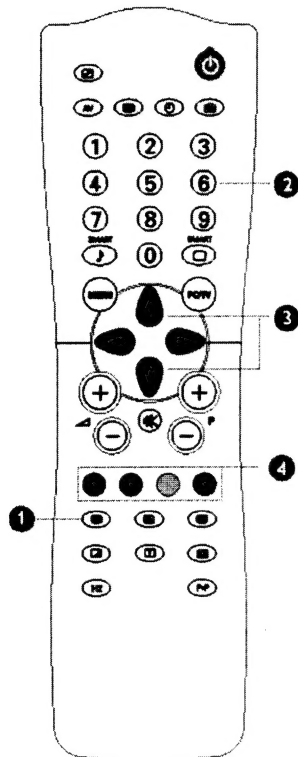
Use your remote controller



- 1 PIP Shift
- 2 PIP On/Off, Size
- 3 AV source
- 4 Smart sound controls To access a series of settings: VOICE, MUSIC, THEATRE and return to PERSONAL
- 5 Menu To display or exit from the menus
- 6 Cursor These 4 keys are used to move within the menus
- 7 Volume To adjust the sound level
- 8 Mute To disable or enable the sound
- 9 Teletext features
- 10 Sound mode To switch from STEREO to MONO or to choose between Dual I and Dual II for bilingual transmissions. For TV sets fitted with NICAM reception, depending on the transmission, you can switch from CAMSTEREO to MONO or choose between NICAM DUAL I, NICAM DUAL II and MONO. When the sound mode is switched to MONO, the indication is displayed in red.
- 11 Previous programme To access the previously viewed programme.
- 12 Screen information To display/remove the programme number, the name (if it exists), the time, the sound mode and the time remaining on the timer. Hold down for 5 seconds to permanently display the programme number on the screen. The volume level and the smart control adjustments are then displayed each time they are used.
- 13 Selecting TV programmes To move up or down a programme. The number, (the name) and the sound mode are displayed for a few seconds. For some TV programmes the title of the programme appears at the bottom of the screen.
- 14 PC/TV mode selection
- 15 Smart picture controls To access a series of settings: RICH, NATURAL, SOFT, MULTIMEDIA and return to PERSONAL.
- 16 Numerical keys For direct access to programmes. For a 2 digit programme number, the 2nd digit must be entered before the dash disappears.
- 17 Program List
- 18 Standby To set the TV to standby mode. To switch the TV set on again, press -, +, or any digit between 0 and 9.
- 19 Sleep timer To select the length of time before the set automatically switches to standby (from 0 to 240 minutes)

Using the Teletext (for areas where teletext service is available)

Teletext is an information system broadcast by certain TV channels which can be consulted in the same way as a newspaper. It also provides subtitles for the hard of hearing or people who are unfamiliar with the broadcast language (cable TV network, satellite channels, etc.).



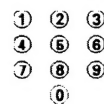
Press button **Result on Screen**
Display or exit teletext. The main index page presents a list of subjects to which you have access. Each subject has a corresponding page number (always 3 digits).



Note: If selected TV channel does not broadcast teletext, P100 is displayed and the screen remains black. Exit teletext mode and choose another TV channel.

1 On/Off teletext

2 Selecting a teletext page



Key in the required teletext page (3 digits). The page number is displayed at the top left hand corner of the screen. When the teletext page is located, the counter stops searching. If the counter keeps searching, it means that the page is not available for selection. If you make a mistake in keying the page number, you have to complete keying the 3-digit number before re-keying the correct page number.

3 Accessing a teletext page



Press the CURSOR UP button to display the previous page and the CURSOR DOWN button to display the next page.

4 Direct Access to an item or corresponding pages



The 4-colour buttons allow you to access directly an item or corresponding pages.

5 Mix



Allows you to superimpose the teletext page over the TV programme. Press the button the second time to return to teletext page only.

6 Reveal/Conceal



Press the button once to reveal hidden information (solutions to puzzles, riddles, etc.). Press the button the second time to conceal information.

7 Enlarge



Press the button once to enlarge and view the top half of the page. Press the button the second time to enlarge and view the bottom half of the page. Press the button the third time to return to normal size page.

8 Hold



A selected page sometimes contains a few sub-pages. The sub-page will automatically move to the next sub-page after about 20 seconds. The total number of sub-pages are indicated at the top right hand corner of the screen. Press the button once to hold page and the second time to release holding of page.

9 Main Index

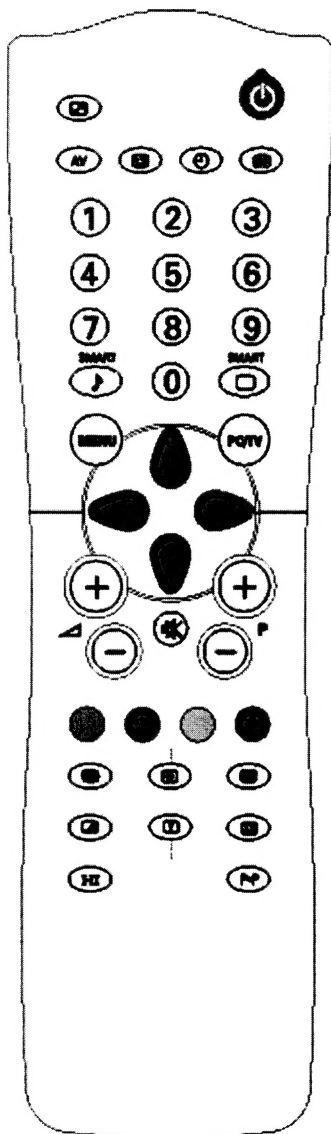


Press the button to return to the main index (generally on page 100).


◀◀ Go to cover page

Using the Programme Listing

Programme listing feature allows you to navigate through a list of installed programmes for a quick overview of the channels installed on your television



Press buttonResult

1.  Display the list of installed programmes. The current channel is highlighted.
2.  Cycle through the programme list and highlight the channel number you want to view.
3.  Activate the channel you have selected.
4.  Exit menu from screen or wait for the menu to time out and disappear from screen.

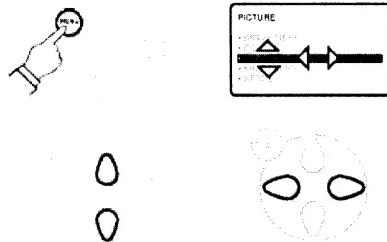
on Screen



TV OSD Menus

180MT10P LMT 7
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Using other menu (With remote controller)



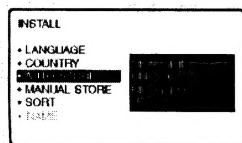
Choosing a language and country



1. Press the MENU key to display the main menu.
2. Select INSTALL (), then press (). The INSTALL menu appears. The LANGUAGE option is activated.
3. Press () to go into the LANGUAGE menu.
4. Select your language with the () keys.
The menu will appear in the chosen language.
5. Press () to exit the LANGUAGE menu.
6. Select the option COUNTRY and press ().
7. Select your country with () keys.
If your country does not appear in the list, select OTHER.
8. Press () to exit the COUNTRY menu.
9. To exit from the menus, press ().

Automatic tuning

This menu allows you to automatically search for all the programmes available in your region (or on your cable network).



1. First carry out operations 1 to 8 above, then:
2. Press () once to select AUTO STORE then press (). The search begins. After several minutes, the INSTALL menu Reappears Automatically.
3. If the transmitter or the cable network broadcasts the automatic sort signal, the programmes will be correctly numbered.
4. If not, the programmes found will be numbered in descending order starting at 99, 98, 97, etc.
Use the SORT menu to renumber them. Some transmitters or cable networks broadcast their own sort parameters (region, languages, etc.). Where this is the case, make your choice using the () keys And confirm with (). To exit or interrupt the search, press the MENU key.
5. To exit from the menus, press ().

Manual tuning



This menu allows you to store the programmes one by one.

1. Press MENU.
2. Select INSTALL (), then press (). The INSTALL menu appears.
3. Select MANUAL STORE () then press (). The menu appears:
4. Press () to go to the SYSTEM menu. Use () to choose EUROPE (automatic detection*) or manual detection with WEST EUR (standard BG reception), EAST EUR (standard DK Reception), UK (standard I reception) or France (standards LL'). Then press () to exit from the menu.
* Except for France (standard LL'): select the option FRANCE.
5. Select SEARCH and press ().
The search begins. As soon as a programme is found, the search will stop. If you know the frequency of the programme required, enter its number directly using the 0, 9 keys and go to step 7.
6. If reception is un-satisfactory, select FINE TUNE and hold down () or () key.
7. Select PROG. NO (programme number) and use the () or 0 to 9 keys to enter the desired number.
8. Select STORE and press (). The message STORED appears. The programme is stored.
9. Repeat steps 5 to 8 for each programme to be stored.
To exit: press the () key.

8 180MT10P LMT

Go to cover page

TV OSD menus

Sorting programmes

1. Press MENU key. The main menu is displayed.
2. Select INSTALL (), then press (). The INSTALL menu appears.



3. Using the () key, select SORT then press (). The SORT menu appears. The FROM option is activated.
4. Select the programme you wish to renumber using () keys or 0 to 9.

Example: to renumber programme 78 as 2 press 7,8.

5. Select TO (using () key) and enter the new number with () keys or 0 to 9 (for the example given, enter 2).

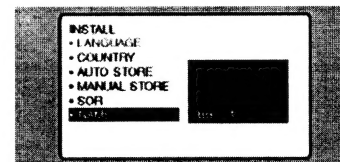
6. Select EXCHANGE (() key) and press ().
The message EXCHANGED appears, the exchange takes place. In our example, programme 78 is renumbered as 2 (and programme 2 as 78).

7. Select the option FROM (() key) and repeat stages 4 to 6 as many times as there are programmes to renumber.
8. To exit from the menus, press ().

Programme name

You may, if you wish, give a name to the first 40 programmes (from 1 to 40).

1. Press MENU.
2. Select INSTALL (), then press (). The INSTALL menu appears.
3. Press () 5 items to select NAME (concealed at the bottom of the screen,) then () press (). The menu Appears:



4. Select the programme you wish to name using the keys 0, 9 Or - P +.

Note: at the time of installation, the programmes are automatically named when the identification signal is transmitted.

5. Use the keys () to move within the name display area (5 characters).

6. Use () keys to choose the characters.
7. Press MENU when the name has been entered.
The programme name is stored.
8. Repeat steps 4 to 7 for each programme to be Named.
9. To exit from the menus, press ().

Adjusting the picture

1. Press MENU then (). The PICTURE menu Appears:



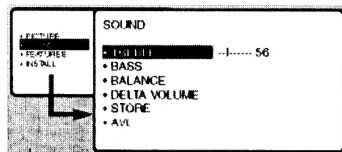
2. Use () keys to select a setting and () keys to Adjust.
Note: the menu is a scroll-down menu.
Keep the key () held down to access the settings hidden at the bottom of the screen.
3. Once the necessary adjustments have been made, select the option STORE and press () to store them.
4. To exit from the menus, press ().

Description of the settings:

BRIGHTNESS: alters the brightness of the image.
COLOUR: alters the colour intensity.
CONTRAST: alters the variation between light and dark tones.
SHARPNESS: alters the crispness of the image.
STORE: stores the picture settings.
COLOUR TEMP (colour temperature): adjusts the colour temperature of the picture. Three options are available here: COOL (blue white), NORMAL (balanced) or WARM (red white). NR (Noise Reduction): alleviates fuzziness (snowy picture). This setting is useful when reception is Difficult.
ACTIVE CONTROL (only available on certain versions): optimizes the quality of the picture according to the quality of reception. This adjustment is in the OPTIONS menu.

Adjusting the sound

1. Press MENU, select the SOUND option () and press .
The SOUND menu appears:



2. Use keys to select a setting and keys to Adjust.

Note: to access the AVL setting (hidden at the bottom of the screen) hold down key.

3. Once the necessary adjustments have been made, Select the option STORE and press to store them.

4. To exit from the menus, press .

Description of the settings:

TREBLE: alters the level of the high frequency sound.

BASS: alters the level of the low frequency sound.

BALANCE: to balance the sound between the left and right speakers.

DELTA VOLUME (volume difference): allows you to compensate for the volume differences between the different programmes or the EXT sockets. This setting is available for programmes 1- 40 and the EXT Sockets.

STORE: stores the sound settings.

AVL (Automatic Volume Leveller): automatic volume control used to avoid sudden increases in volume, particularly when changing programmes or during Advertisements.

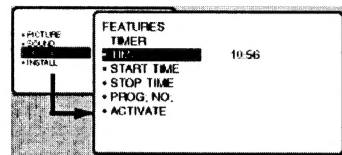
Timer function

This menu allows you to use your TV as an alarm Clock.

1. Press MENU.

2. Select FEATURES (), and press twice.

The TIMER menu appears:



3. Press to enter and exit the sub-menus and use Keys to adjust:

4. TIME: enter current time. Note: the time is updated automatically each time the set is switched on using teletext information taken from programme 1. If programme 1 does not have teletext, the update will not take place.

5. START TIME: enter the start time.

6. STOP TIME: enter the stop time.

7. PROG. NO.: enter the number of the programme Required.

8. ACTIVATE: you can set the alarm to be activated:

ONCE ONLY for a one-off alarm, DAILY for a daily alarm or STOP to cancel.

9. Press to set the TV to standby. It will automatically switch on at the time programmed. If you leave the TV switched on, it will only change programme at the time indicated.

The combination of the CHILD LOCK and TIMER functions may be used to limit the length of time your television is in use, for example, by your children.

Locking the set

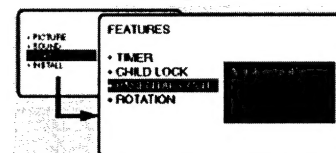
You can bar access to certain programmes or completely lock the set by locking the keys.

Locking programmes

1. Press MENU.

2. Select FEATURES () and press .

3. Select PARENTAL. CONT. () and press .



4. Enter your confidential access code. The first time, enter the code 0711 then confirm by re-entering 0711. The menu appears.

5. Press to go into the menu.

6. Use keys to select the required programme and confirm With . The symbol is displayed alongside the programmes or sockets that have been locked.

7. Press to exit.

To watch a programme which has been locked you will now need to enter the confidential code; otherwise the screen will remain blank. The INSTALL menu access is also locked.

Caution: in the case of encrypted programmes which use an external decoder, it is necessary to lock the corresponding EXT socket.

To unlock all programmes

Repeat stages 1 to 4 above, then select CLEAR ALL and press .

To change the confidential code

Repeat stages 1 to 4 above, then:

5. Select CHANGE CODE and enter your own 4-digit Number.

6. Confirm by entering it again. Your new code will be stored.

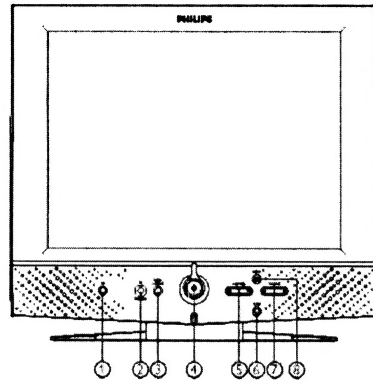
7. Press to exit from the menus.

If you have forgotten your confidential code, enter the universal code 0711 twice.

Description of Controls

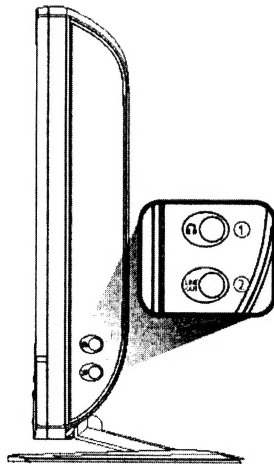
180MT10P LMT 13
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Front View Product Description

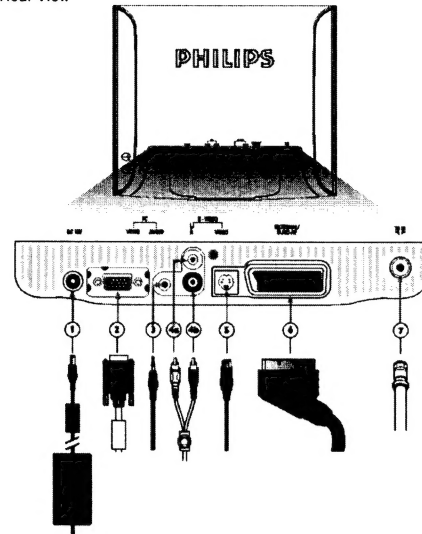


- 1 PIP Activate PIP (Picture in Picture) window and select size
- 2 PC<->TV/Video Switch the monitor between PC mode and TV/Video mode
- 3 VIDEO SOURCE TV/Video source selection
- 4 Power switch On/Off
- 5 Increase or decrease the channel number Or up or down the highlighted function in OSD
- 6 AUTO Automatically adjust the H/V position, phase and clock Setting
- 7 + - Increase or decrease the level of audio volume Or decrease or increase the highlighted function in OSD
- 8 MENU OK Open the OSD and select the highlighted function

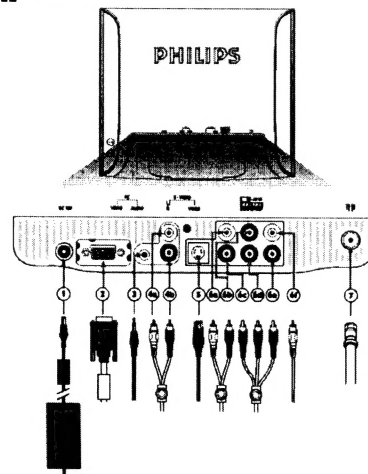
Side View



Rear View



- (Europe)
- 1. DC 12VDC 12V power in
 - 2. PC - Video D-Sub input
 - 3. PC - Audio PC Stereo input
 - 4. S-VIDEO (L) AV audio (L)
 - 5. S-VIDEO (R) AV audio (R)
 - 6. S-VIDEO S-VIDEO in
 - 6. EXTERNAL/EURO-AV SCART connection (for Europe only)
 - 7. 75Ω TV Antenna or CATV cable in



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Description of Controls

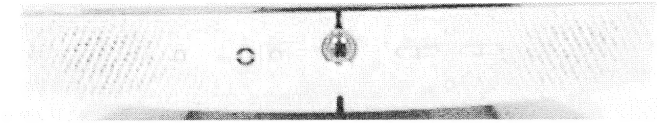
(North America and Asia Pacific)

- 1. DC 12VDC 12V power in
- 2. PC - Video D-Sub input
- 3. PC - Audio PC Stereo input
- 4. S-VIDEO (L) AV audio (L)
- 5. S-VIDEO (R) AV audio (R)
- 5. S-VIDEO S-VIDEO in
- 6. L R - AV IN
- 6a Audio (L) in
- Y-Pb-Pr
- 6b Audio (R) in
- Component
- 6c CVBS in
- 6d, e, f Component video in
- 7.75 Ω TV Antenna or CATV cable in

Optimizing Performance

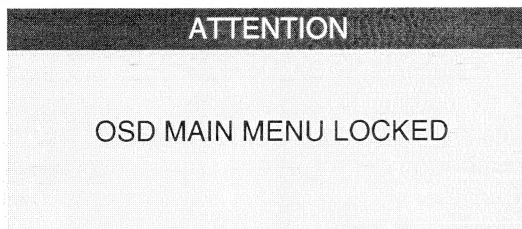
For best performance, ensure that your display settings are set at 1024x768@60Hz (for 15") or 1280x1024, 60Hz (for 18").

Front control panel

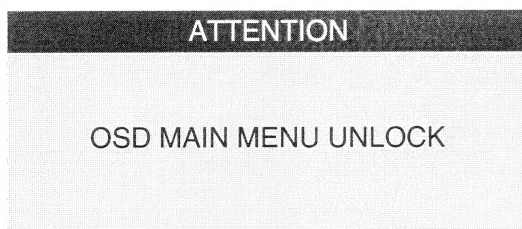


To Lock/Unlock OSD function

The OSD function can be locked by pressing **OK** button for more than 10 seconds, the screen shows following windows for 3 seconds. Everytime when you press **OK** Or **AUTO** button, this message Appears On the screen automatically. The **▲ & ▼** (CHANNEL), **+** & **-** (VOLUME) hotkey are still functional for CHANNEL and VOLUME expectively while OSD locked



Locked OSD function can be released by pressing **OK** button for more than 10 seconds. While press **OK** button for OSD unlocked purpose, the screen will keep showing OSD MAIN MENU LOCKED until OSD function unlocked and screen automatically shows following window for 3 seconds.



Switch ON/OFF attention signals

All attention signals can be switched off by keep pressing **AUTO** button for more than 10seconds if there is no video signal supplied.

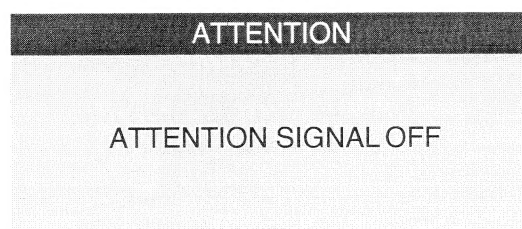


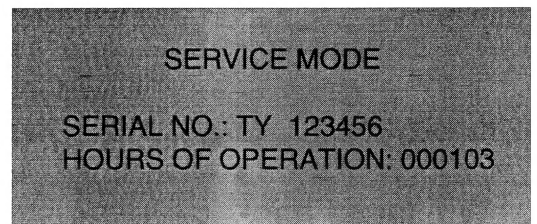
Fig. 2

Recover attention signals by pressing **AUTO** button for more than 10 seconds without video signal input.



Access Service Mode

Operating monitor with no signals (power saving mode), keep pressing **OK** button for more than 10 seconds. Following information will appear on the screen. Leave service mode by either re-feed video signal or simply turn off and on the power of monitor.



Access Factory Mode

To hold **OK** And **AUTO** buttons then power on the monitor. Press **OK** to bring up OSD menu for confirmation as below:



In the factory mode, once video signal removed, a full white pattern will be display on the screen as Fig.1 in stead of power saving mode. In other words, the powersaving function will be disable in the factory mode.



Fig.1

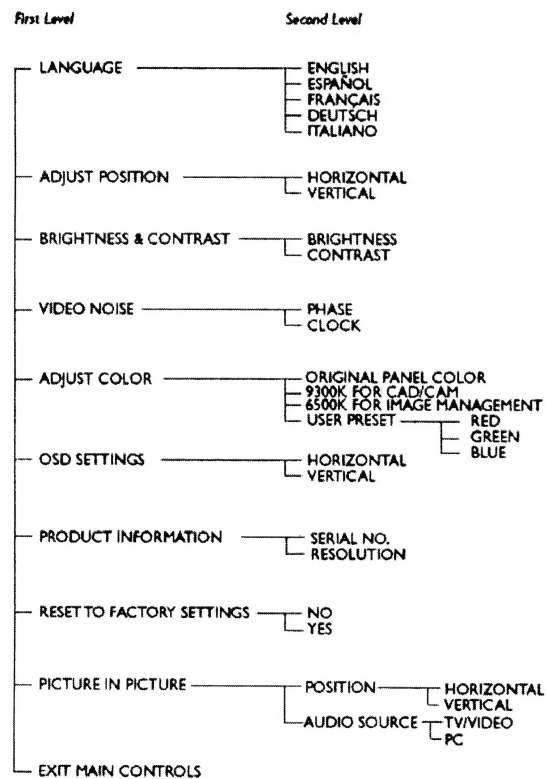
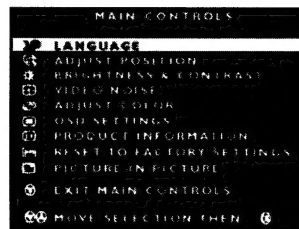
The OSD Tree

Below is an overall view of the structure of the On-Screen Display. You can use this as reference when you want to later on work your way around the different adjustments.

- In PC Mode:

OSD Control structure

In PC mode

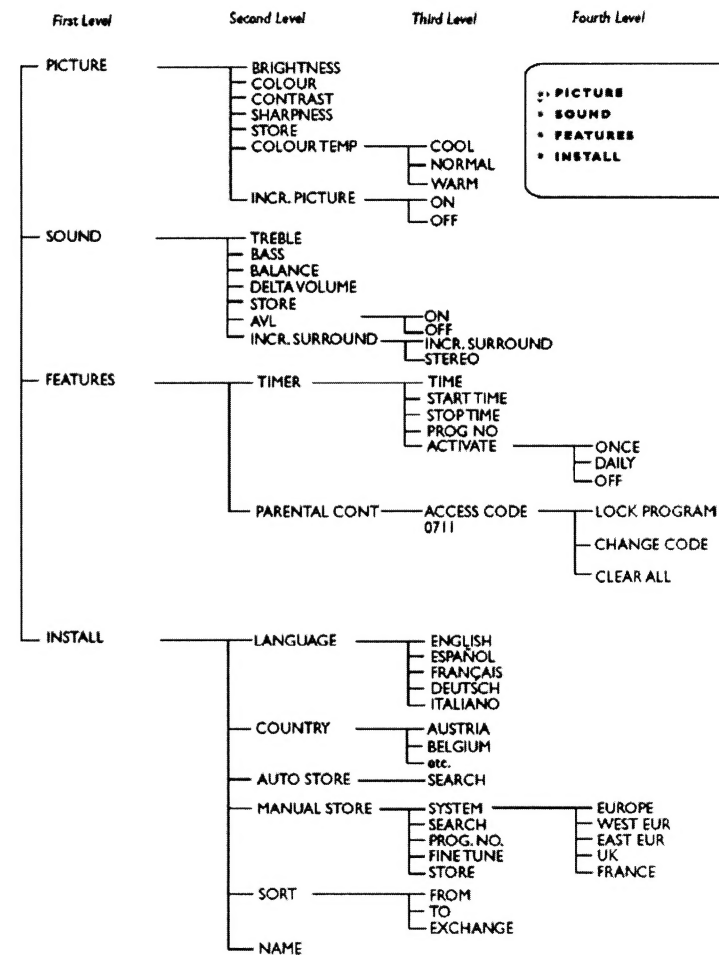


* Specifications are subject to change without prior notice.

OSD Control structure

In TV/Video Mode

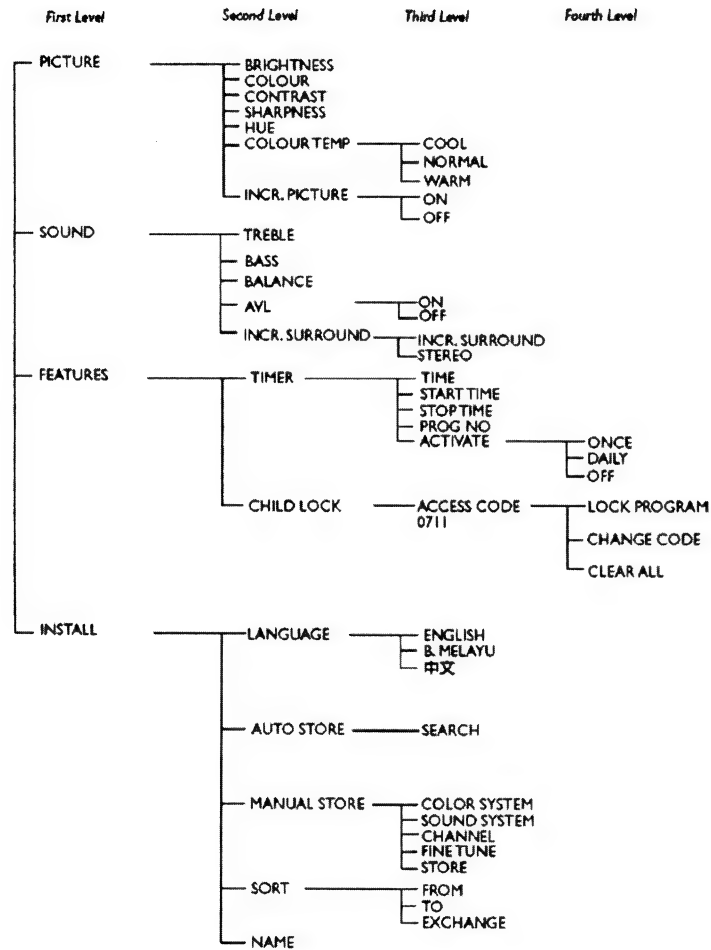
(For Europe)



* Specifications are subject to change without prior notice.

OSD Control structure

(For Asia Pacific)

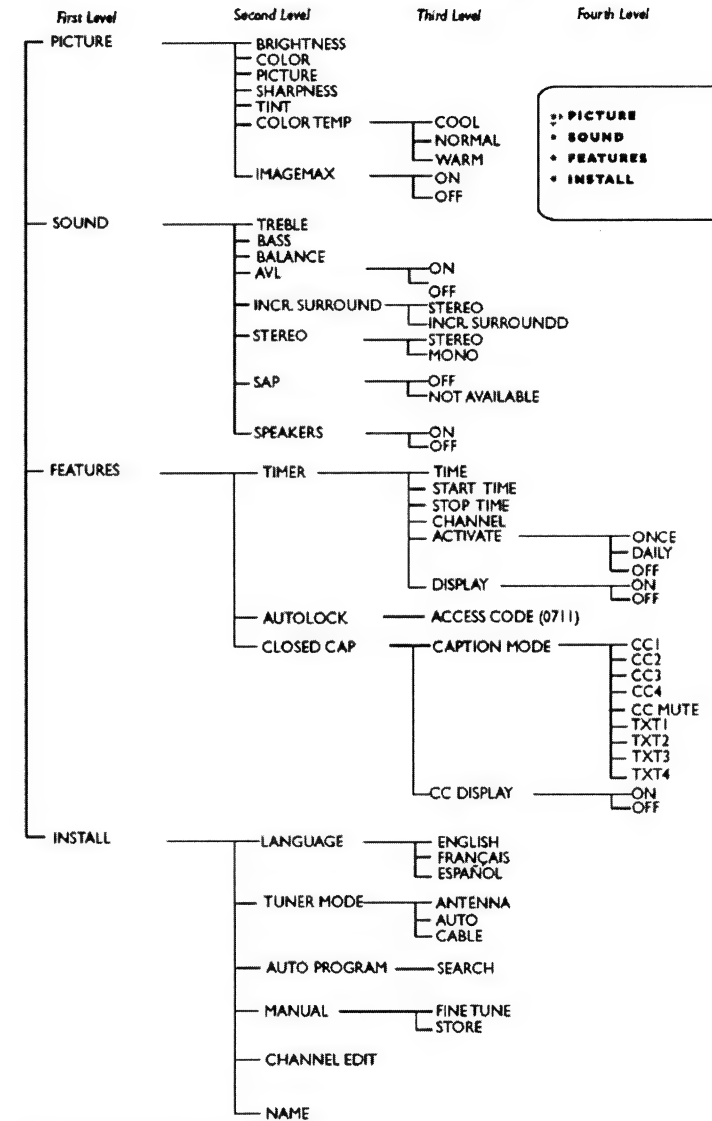


* Specifications are subject to change without prior notice.

OSD Control structure

In TV/Video Mode

(For NTSC system: North America, Philippine, Taiwan and Korea)



* Specifications are subject to change without prior notice.

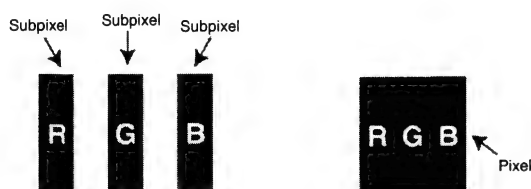
◀◀ Go to cover page

0. General

This section explains the different types of pixel defects and defines acceptable defect levels of each type. In order to qualify for repair or replacement under warranty, the number of pixel defects on a TFT LCD panel must exceed these acceptable levels.

1. Definition of Pixels and Subpixels

A pixel, or picture element, is composed of three subpixels in the primary colors of red, green and blue. Many pixels together from an image. When all subpixels of a pixel are lit, the three colored subpixels together appear as a single white pixel. When all are dark, the three colored subpixels together appear as a single black pixel. Other combinations of lit and dark subpixels appear as single pixels of other colors.



2. Types of Pixel Defects

Pixel and subpixel defects appear on the screen in different ways.

Bright dot defects

Bright dot defects appear as pixels or subpixels that are always lit or 'On'. These are the types of bright dot defects:

One lit red, green or blue subpixel



Two adjacent lit subpixels:

- Red + Blue = Purple
- Red + Green = Yellow
- Green + Blue = Cyan (Light Blue)



Three adjacent lit subpixels
(One white pixel)



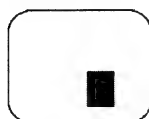
Black dot defects

Black dot defects appear as pixels or subpixels that are always dark or 'off'. These are the types of black dot defects:

One dark subpixel



Two or three adjacent dark subpixels



3. Pixel Defect Tolerances

In order to qualify for repair or replacement due to pixel defects during the warranty period, a TFT LCD panel in a PHILIPS flat panel monitor must have pixel or subpixel defects exceeding the tolerances listed in the following tables.

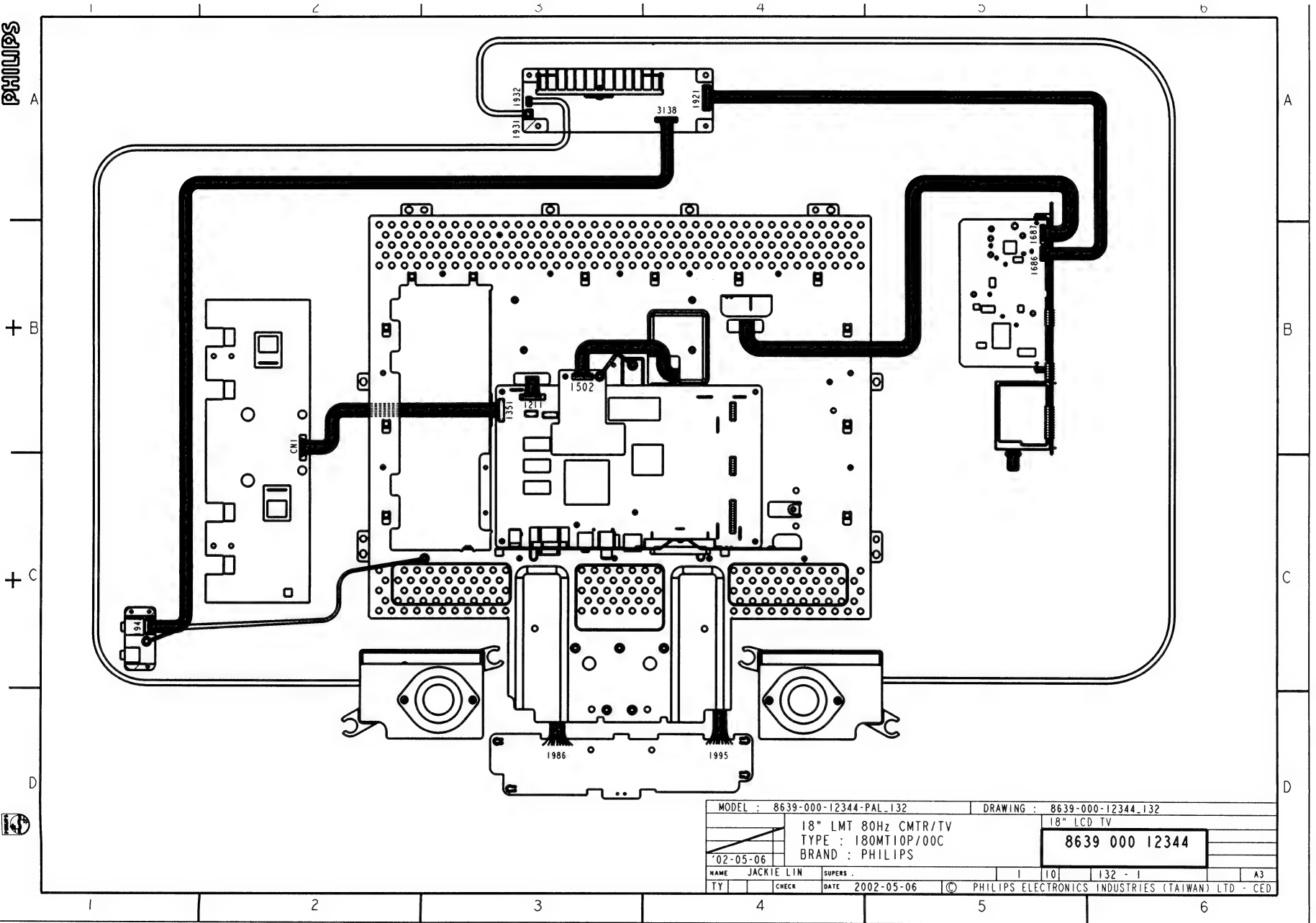
| BRIGHT DOT DEFECTS | ACCEPTABLE LEVEL | |
|--|------------------|---------------|
| | 150MT | 180MT |
| MODEL | | |
| 1 lit subpixel | 4 or fewer | 3 or fewer |
| 2 adjacent lit subpixels | 2 or fewer | 2 or fewer |
| 3 adjacent lit subpixels (one white pixel) | 0 | 0 |
| Distance between two bright dot defects* | 15 mm or more | 15 mm or more |
| Bright dot defects within 20 mm circle | 3 or fewer | - |
| Total bright dot defects of all types | 4 or fewer | 3 or fewer |

| BLACK DOT DEFECTS | ACCEPTABLE LEVEL | |
|---|------------------|---------------|
| | 150MT | 180MT |
| MODEL | | |
| 1 dark subpixel | 4 or fewer | 3 or fewer |
| 2 adjacent dark subpixels | 2 or fewer | 2 or fewer |
| 3 adjacent dark subpixels | 0 | 0 |
| Distance between two black dot defects* | 15 mm or more | 15 mm or more |
| Black dot defects within 20 mm circle* | 3 or fewer | - |
| Total black dot defects of all types | 4 or fewer | 3 or fewer |

| TOTAL DOT DEFECTS | ACCEPTABLE LEVEL | |
|--|------------------|------------|
| | 150MT | 180MT |
| MODEL | | |
| Total bright or black dot defects of all types | 4 or fewer | 6 or fewer |

Note: 1 or 2 adjacent subpixel defects = 1 dot defect

Wiring Diagram



Electrical instructions

180MT10P LMT 25

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0. General

When carry-out the electrical settings in many cases a video signal must be applied to the monitor. A computer with :

- ATI VGA 1024 V6-1.04/PHBETA4 interface card
- PGA 1024 (4822 212 30916), Mach 8.
- PGA 1280 (4822 212 30917), Mach 32.
- ATIGPT-1600 (4822 397 10065), Mach 64 (up to 107kHz)

are used as the video signal source. The signal patterns are selected from the "service test software" package, see user guide 4822 727 19896 (ATI1024), or 4822 727 20273 (PGA 1280), or 4822 727 21046 (GPT-1600).

0.1 With normal VGA card:

If not using the ATI card during repair or alignment. The service engineer also can use this service test software adapting with normal standard VGA adaptor and using standard VGAmode 640 x 480, 31.5 kHz/60 Hz (only) as signal source.

0.2 AC/DC Measurement:

The measurements for AC waveform and DC figure is based on 1024 x 768 48kHz/60 Hz resolution mode with test pattern "32 gray scale".

Power input: 110V AC

1. General points

1.1 During the test and measuring, supply a distortion free AC mains voltage to the apparatus via an isolated transformer with low internal resistance.

1.2 All measurements mentioned hereafter are carried out at a normal mains voltage (90 - 132 VAC for USA version, 195 - 264 VAC for EUROPEAN version, or 90 - 264 VAC for the model with full range power supply, unless otherwise stated.)

1.3 All voltages are to be measurement or applied with respect to ground, unless otherwise stated. Note: don't use heat-sink as ground.

1.4 The test has to be done on a complete set including LCD panel in a room with temperature of 25 +/- 5 degree C.

1.5 All values mentioned in these test instruction are only applicable of a well aligned apparatus, with correct signal.

1.6 The letters symbols (B) and (S) placed behind the test instruction denotes

- (B): carried out 100% inspection at assembly line
- (S): carried out test by sampling

1.7 The white balance (color temperature), has to be tested in subdued lighted room.

1.8 Repetitive power on/off cycle are allowed except it should be avoided within 6 seconds.

2. Input signal

2.1.1 Signal type

Video : 0.7 Vp-p linear, positive polarity
Sync. : TTL level, separate, positive or negative polarity
Signal source: pattern generator format as attachment.
(table 1 to 17) Reference generator: CHROMA 2200 or 2250

2.1.2

RF Signal : Aerial input
Video signal : SCART input (Europe mode only)
Cinch input (NAFTA, AP mode only)
S video input

Audio signal : for S-terminal L/R audio input
PC line in
Audio Line out

2.2 PC Input signal mode

Factory preset video resolution

| Dot rate (MHz) | H.freq (KHz) | Mode | Resolution | V.freq (Hz) |
|----------------|--------------|-------------|-------------|-------------|
| 25.175 | 31.469 | IBM VGA 10h | 640 * 350 | 70.087 |
| 28.322 | 31.469 | IBM VGA 3h | 720 * 400 | 70.087 |
| 25.175 | 31.469 | IBM VGA 12h | 640 * 480 | 59.940 |
| 30.240 | 35.000 | MACINTOSH | 640 * 480 | 66.667 |
| 31.500 | 37.861 | VESA | 640 * 480 | 72.809 |
| 31.500 | 37.500 | VESA | 640 * 480 | 75.000 |
| 36.000 | 35.156 | VESA | 800 * 600 | 56.250 |
| 40.000 | 37.879 | VESA | 800 * 600 | 60.317 |
| 50.000 | 48.077 | VESA | 800 * 600 | 72.188 |
| 49.500 | 46.875 | VESA | 800 * 600 | 75.000 |
| 57.300 | 49.700 | MACINTOSH | 832 * 624 | 75.000 |
| 65.000 | 48.363 | VESA | 1024 * 768 | 60.004 |
| 75.000 | 56.476 | VESA | 1024 * 768 | 70.069 |
| 78.750 | 60.023 | VESA | 1024 * 768 | 75.029 |
| 100 | 68.681 | MACINTOSH | 1152 * 870 | 74.979 |
| 108 | 63.981 | VESA | 1280 * 1024 | 60.020 |
| 135 | 79.976 | VESA | 1280 * 1024 | 75.024 |

2.3 TV input signal Channel and pattern

2.3.1 Table 1 for NAFTA version

Signal Distribution Table (NTSC Cable)

| PRG | CH | Frequency Carriers | | TV System | Pattern |
|-----|------|--------------------|-----------|-----------|------------------|
| | | Video | Sound | | |
| 1 | A 03 | 61.25MHz | 65.75MHz | NTSC-M | Color Circle |
| 2 | A 06 | 83.25MHz | 87.75MHz | NTSC-M | Red Raster |
| 3 | A 09 | 187.25MHz | 191.75MHz | NTSC-M | Circle Pattern |
| 4 | A 11 | 199.25MHz | 203.75MHz | NTSC-M | Cross Hatch |
| 5 | A 13 | 211.25MHz | 215.75MHz | NTSC-M | Two White Window |
| 6 | C 70 | 499.25MHz | 503.75MHz | NTSC-M | Checkerboard |
| 7 | A 52 | 699.25MHz | 703.75MHz | NTSC-M | Color Bar |
| 8 | A 69 | 801.25MHz | 805.75MHz | NTSC-M | 100% White |

Table 1

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2.3.2 Table2 for Europe and AP-multi

Signal Distribution Table (PAL Cable)

| PRG | CH | Frequency Carriers | | TV System | Pattern |
|-----|------|--------------------|------------|--------------|----------------|
| | | Video | Sound | | |
| 0 | | | | | |
| 1 | AU37 | 590.25MHz | 595.75MHz | PAL B (UK) | Pure White |
| 2 | AU2 | 64.25MHz | 69.75MHz | PAL B (UK) | Circle Pattern |
| 3 | E7 | 189.25MHz | 194.75MHz | PAL B (CCR) | Circle Pattern |
| 4 | G47 | 679.25MHz | 684.75MHz | PAL G (CCR) | Circle Pattern |
| 5 | I23 | 487.25MHz | 493.75MHz | PAL I (UK) | Circle Pattern |
| 6 | E12 | 224.25MHz | 229.75MHz | PAL B (CCR) | Color Bar |
| 7 | AU7 | 182.25MHz | 187.75MHz | PAL B (UK) | Color Bar |
| 8 | G68 | 847.25MHz | 852.75MHz | PAL G (CCR) | 100% White |
| 9 | AU9 | 196.25MHz | 201.75MHz | PAL B (UK) | Checkerboard |
| 10 | AU10 | 209.25 MHz | 214.75 MHz | PAL B (UK) | Crosshatch |
| 11 | AU0 | 46.25MHz | 51.75MHz | PAL B (UK) | Color Bar |
| 12 | AU2 | 64.25MHz | 69.75MHz | PAL B (UK) | Color Bar |
| 13 | AU5 | 102.25 MHz | 107.75 MHz | PAL B (UK) | Crosshatch |
| 14 | AU5A | 138.25MHz | 143.75MHz | PAL B (UK) | Color Bar |
| 15 | AU7 | 182.25MHz | 187.75MHz | PAL B (UK) | Pure White |
| 16 | AU9 | 196.25MHz | 201.75MHz | PAL B (UK) | Pure White |
| 17 | AU10 | 209.25MHz | 214.75MHz | PAL B (UK) | Circle Pattern |
| 18 | I23 | 487.25MHz | 493.75MHz | PAL I (UK) | Circle Pattern |
| 19 | G28 | 527.25MHz | 532.75MHz | PAL G (CCR) | Circle Pattern |
| 20 | AU37 | 590.25MHz | 595.75MHz | PAL G (UK) | Circle Pattern |
| 21 | I40 | 623.25MHz | 629.75MHz | PAL I (UK) | Color Bar |
| 22 | CH44 | 655.25MHz | 661.75MHz | PAL DK (UK) | Color Bar |
| 23 | I60 | 783.25MHz | 789.75MHz | PAL I (UK) | 100% White |
| 24 | I66 | 831.25MHz | 837.75MHz | PAL I (UK) | Checkerboard |
| 25 | K21 | 471.25 MHz | 477.75 MHz | SEC-K1 (CCR) | Crosshatch |
| 28 | G28 | 527.25MHz | 532.75MHz | PAL G (UK) | Color Bar |

Table 2

Electrical instructions

3. AC adaptor

3.1 Setup the AC/P at 90VAC, and Output DC loading at 4.5Amp.
The DC output voltage is 12.1V DC

3.2 Adjustment is nothing to do

4. PC mode Display Adjustment

4.1 Display quality adjustment

Use timing mode as describe in 2.2, and use the POPO (pixel on pixel off) pattern to adjust the clock until no stripe and adjust the phase until clear picture.
Check all pre-setting 140 modes.

4.2 WHITE-D adjustment (B)

4.2.1 At factory mode apply 60KHz/75Hz mode with crosshatch pattern.

Set main controls brightness control at 100% and contrast to 50%. Set auto-sub function for auto offset and sub-con setup

4.2.2 Apply white pattern, set brightness control at 100%, and contrast control at 50%. Preset R, G, B gain at 127.

Adjust the R, G, B gain of Scalar in Factory Mode. (see Fig 1.)
The 1931 CIE chromaticity (X, Y) co-ordinates shall be:

9300K 6500K
x (center) 0.281 0.005 0.312 0.005
y (center) 0.311 0.005 0.338 0.005

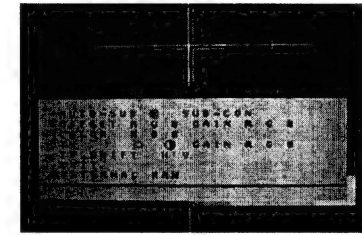
Use Minolta CA-110 for color coordinates and luminance Check.

Luminance > 250 Nits (CPT) in the center of the screen at Original color and PC Brightness control; Contrast control at 100%

Note : After white-D adjustment set brightness and contrast at 50%

4.3 Check the digital interface cable

Check the 64 grey level color poor & noise condition.



5.0 TV Mode display adjust

5.1.1 Geometry Adjustment (B)

A) INPUT REQUIREMENTS

Equipment : PM5515, PM5518 or FLUKE 54200
Input Signal Type : 1.1 for RF input signal

within PAL system (for Europe and AP version), channel : E7 (189.25MHz) the pattern is using circle and cross hatch pattern

2. for S-Video input signal, within NTSC system (for Europe and AP version), the pattern is using Circle and cross hatch pattern

input Signal Strength : >= 1mV rms (60 dBuV) terminal Voltage.

Input Injection Point : 1Vpp Y-signal, 300mVpp C-signal
: Aerial input and S-Video input

B) ALIGNMENT METHOD

Initial Set-up : Set smart picture to Natural.

- a. select to TV channel, then adjust vertical shift, and horizontal shift to picture center then save.
- b. select to S-video Adjust vertical shift, and horizontal shift to picture center then save.
- c. Left space - Right space < 2mm

Electrical instructions

5.1.2 White balance adjustment (B)

A) GENERAL SET-UP

Equipment Requirements : Colour analyzer.

B) INPUT REQUIREMENTS

Input Signal Type : RF signal, modulated with white Pattern
Input Signal Strength : $\geq 10\text{mVrms}$ (80 dBuV) terminal voltage.
Input Injection Point : Aerial input

C) ALIGNMENT METHOD

Initial Set-up : After PC White D adjust
Set color to original color
Set TV Brightness = 122 ; Contrast = 64
in Factory mode (can be fine tuned)
Set smart picture to Natural (Europe, AP model)
Set Color Temp to Normal
Select COLOR TEMP or 100% Full White pattern by TV pattern generator
Method of Alignments : Adjust TV R, G, B gain
Adjust TV red, green and blue to the value in the table
Check the grey level color pool & noise condition if need adjust, please adjust TV Brightness and Contrast in Factory mode.

D) EXPECTED RESULTS

Measured Parameters : White balance.
Specifications : See table.
Units of Measurement : xy.

E) TABLE(S) : Specifications of white balance

| | | |
|------------------|-----------|-----------|
| Picture Mode | x | y |
| Normal (Natural) | 300 +/- 5 | 325 +/- 5 |

Table 5.1: Readings with Philips Colour Meter.

5.2 VIDEO PROCESSING (Conjunction board A10 alignment)

5.2.1 RF AGC take over point adjustment.

Input : Test land of item 7681 pin 11 connector through the probe.
Input signal : IF signal modulated with a Grey scale video signal, video modulation - negative & Sound IF signal (33.4MHz / 31.5MHz / 41.25MHz for picture IF frequencies of 38.9MHz / 38MHz / 45.75MHz respectively), level at 13dB w.r.t. picture IF level, Without modulation (only carrier).

Input Probe : Input via 50 coaxial cable terminated with RC (120.10nF) network at I/P injection point.

Output : pin 1 of tuner connected to a DC voltmeter.
Set bimos : sub address 27, refer to table below.

Method :

Via I²C or with a factory remote control, adjust the AGC take over (data byte sub address 1E, D0-D5) to the step at which the DC voltage should be within 2.5 V AGC takeover voltage 4.6 V.
Record the AGC register content and store in the NVROM location 'TOP', address as specified in the attached 'memory layout' list.

| Versions | IF Frequency (MHz) | IF signal level (dBuV) | Value of Sub address 27 of bimos |
|--------------|--------------------|------------------------|----------------------------------|
| Europe model | 38.9 | 105 | 40hex |

5.2.2 Off-set IF demodulator Adjustment.

Input : Same as RF AGC adjustment.

Input Signal : Same as RF AGC adjustment, with picture IF signal modulated with a cross-hatch video signal instead of greyscale video signal & video level 105%.

Output : Sound decoder (device add. 80H / 81H for Write/Read) Read register Quasi-peak readout left ; Sub Add. 13H ; Reg. 0019H.

Set Sound decoder: 1. DSP write register : Prescale FM/AM ; Sub Add. 12H ; Reg. 000EH ; Data 7F00H.
2. DSP write register : Deemphasis FM ; Sub Add. 12H ; Reg. 000FH ; Data 3F00H.
3. DSP write register : Volume loudspeaker channel ; Sub Add. 12H ; Reg. 0000H ; Data 7F00H.

Method : Via I2C, adjust the 'Off-set IF demodulator' (data byte sub address 05, D0-D5) register value of the bimos so as to get the lowest read back value from the sound decoder.

This value of the 'Off-set IF demodulator' is to be stored in the NVROM locations 'OFFSET_IF_NEG' & 'OFFSET_IF_POS', address as specified in the attached 'memory layout' list.

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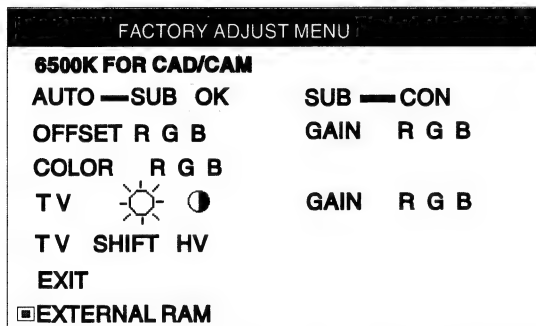
Factory Mode Adjustment

Entering Factory Adjustment Menu

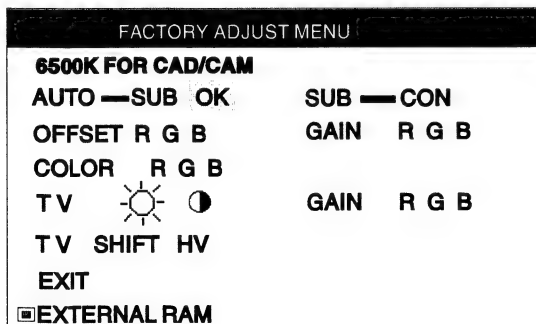
Push **OK** & **AUTO** buttons then power on the monitor, release them after picture display normally. Press **OK** button to bring up OSD menu of factory mode as shown below.



Use ▼ button to select factory adjustment indication (for example: LCD TV V1.28 20011030, which is the entrance of the factory adjustment menu, press **OK** button to access it. The window shows as below.



Use ▲ or ▼ buttons to select SUB-CON, COLOR, R G B, etc. Use + or - buttons to decrease/increase the value of each item. **AUTO** : adjust Sub-brightness & Sub-contrast automatically.



◐ Contrast adjustment (Sub-Contrast). Use this menu item to adjust the contrast gain of pre-amp ranges from 0 to 255.

GAIN R G B
COLOR R G B

Color temperature gain adjustment. Use these menu items to adjust the RGB gains of pre-amp for different color temperatures, ranges from 0 to 255.

OFFSET R G B

Sub-Brightness adjustment. Use this menu item to adjust the brightness level (DC-level) of pre-amp range from 0 to 255.

(PS: The Offset R G B function can be used to reduce or eliminate snowy noise on the background when the resolution of video signal is 1024 X 768 vertical 60Hz. Slightly increase or decrease the value until snowy noise completely disappears.)

All units that are returned for service or repair must pass the original manufactures safety tests. Safety testing requires both *HiPot* and *Ground Continuity* testing.

HI-POT TEST INSTRUCTION

1. Application requirements

- 1.1 All mains operated products must pass the Hi-Pot test as described in this instruction.
- 1.2 This test must be performed again after the covers have been refitted following the repair, inspection or modification of the product.

2. Test method

2.1 Connecting conditions

- 2.1.1 The test specified must be applied between the parallel-blade plug of the mains cord and all accessible metal parts of the product.
- 2.1.2 Before carrying out the test, reliable conductive connections must be ensured and thereafter be maintained throughout the test period.
- 2.1.3 The mains switch(es) must be in the "ON" position.

2.2 Test Requirements

All products should be HiPot and Ground Continuity tested as follows:

| Condition | HiPot Test for products where the mains input range is Full range(or 220V AC) | HiPot Test for products where the mains input is 110V AC(USA type) | Ground Continuity Test requirement |
|-----------------------|---|--|--|
| Test voltage | 2820VDC (2000VAC) | 1700VDC (1200VAC) | Test current: 25A,AC Test time: 3 seconds(min.) Resistance required: $\leq 0.09 + R$ ohm, R is the resistance of the mains cord. |
| Test time (min.) | 3 seconds | 1 second | |
| Trip current (Tester) | set at 100 uA for Max. limitation; set at 0.1 uA for Min. limitation | 5 mA | |
| Ramp time | set at 2 seconds | | |

- 2.2.1 The test with AC voltage is only for production purpose, **Service center shall use DC voltage.**
- 2.2.2 The minimum test duration for Quality Control Inspector must be 1 minute. No breakdown during the test.
- 2.2.3 The test voltage must be maintained within the specified voltage + 5%.
- 2.2.4 The grounding blade or pin of mains plug must be conducted with accessible metal parts.

3. Equipments and Connection

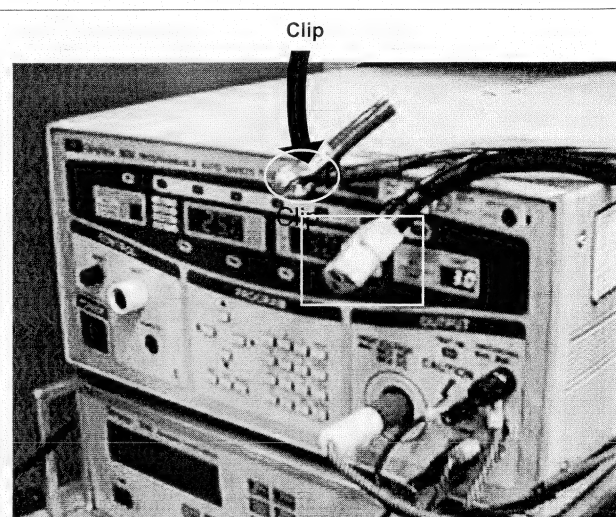
3.1. Equipments

For example :

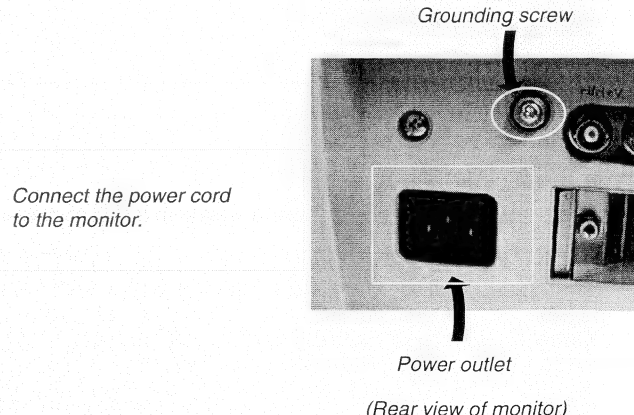
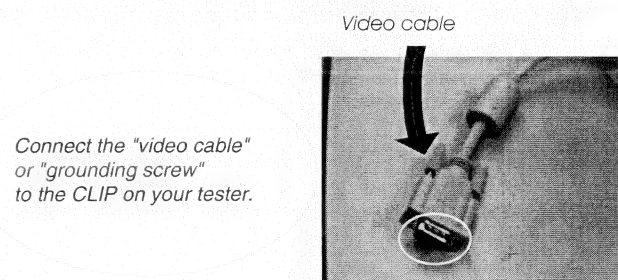
- ChenHwa 9032 PROGRAMMABLE AUTO SAFETY TESTER
- ChenHwa 510B Digital Grounding Continuity Tester
- ChenHwa 901 (AC Hi-pot test), 902 (AC, DC Hi-pot test) Withstanding Tester

3.2. Connection

- * Turn on the power switch of monitor before Hipot and Ground Continuity testing.



(ChenHwa 9032 tester)



4. Recording

Hipot and Ground Continuity testing records have to be kept for a period of 10 years.

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General

DDC Data Re-programming

In case the DDC data memory IC or main EEPROM which storage all factory settings were replaced due to a defect, the serial numbers have to be re-programmed.

It is advised to re-soldered DDC IC and main EEPROM from the old board onto the new board if circuit board have been replaced, in this case the DDC data does not need to be re-programmed.

Additional information

Additional information about DDC (Display Data Channel) may be obtained from Video Electronics Standards Association (VESA). Extended Display Identification Data (EDID) information may be also obtained from VESA.

DDC EDID structure

For Analog interface: Standard Version 3.0

Structure Version 1.2

For Digital interface: Standard Version 3.0

Structure Version 1.3

System and equipment requirements

1. An i486 (or above) personal computer or compatible.
2. Microsoft operation system Windows 95/98.
3. EDID301.EXE program (3138 106 10103) as shown in Fig. 1
4. A/D Alignment Kits (3138 106 10079):
 - inclusion: a. Alignment box x1 (as Fig. 2)
 - b. Printer cable x1
 - c. (D-Sub) to (D-Sub) cable x1

Note: The EDID301.EXE (Release Version 1.58 20000818) is a windows-based program, which cannot be run in MS-DOS.

Diskette with EDID301.EXE



Fig. 1

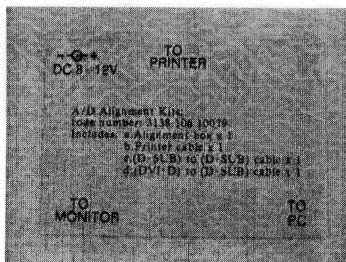
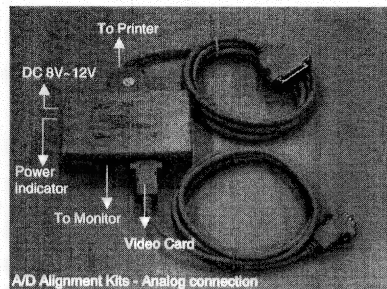
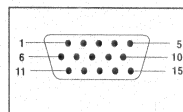


Fig. 2



Note: The alignment box has already built-in a batteries socket for using batteries (9V) as power source. Pull out the socket by remove four screws at the rear of box. Please do not forget that remove batteries after programming. The energy of batteries can only drive circuits for a short period of time.

Pin assignment



| Pin No. | Assignment | Pin No. | Assignment |
|---------|--------------------|---------|------------------------|
| 1 | Red video input | 9 | +5V |
| 2 | Green video input | 10 | Ground |
| 3 | Blue video input | 11 | Ground |
| 4 | Ground | 12 | Serial data line (SDA) |
| 5 | No Connected | 13 | H.Sync |
| 6 | Red video ground | 14 | V.Sync (VCLK for DDC) |
| 7 | Green video ground | 15 | Data clock line (SCL) |
| 8 | Blue video ground | | |

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Configuration and procedure

There are 2 chips contained OSD string, serial number...etc on the circuit board, main EEPROM (7402, 32k) which storage all factory settings, OSD string.DDC IC (7202) which storage 128byte EDID data (serial number...etc.). Following descriptions are the connection and procedure for Analog DDC application, the main EEPROM can be re-programmed along with Analog IC by enable factory memory data write function on the DDC program (EDID301.EXE).

Initialize alignment box

In order to avoid that monitor entering power saving mode due to sync will cut off by alignment box, it is necessary to initialize alignment box before running programming software (EDID301.EXE). Following steps show you the procedures and connection.

- Step 1: Supply 8~12V DC power source to the Alignment box by plugging a DC power cord or using batteries.
- Step 2: Connecting printer cable and video cable of monitor as Fig. 3

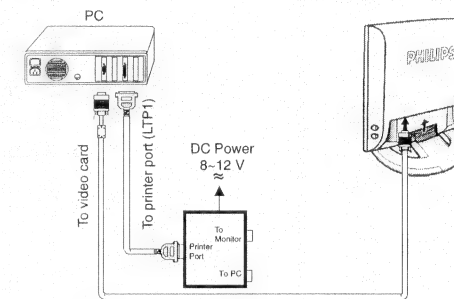


Fig. 3

Step 3: Installation of EDID301.EXE

Method 1: Start on DDC program

Start Microsoft Windows.

1. Insert the disk containing EDID301.EXE program into floppy disk drive.
2. Click **Start**, choose Run at start menu of Windows 95/98 as shown in Fig. 4.

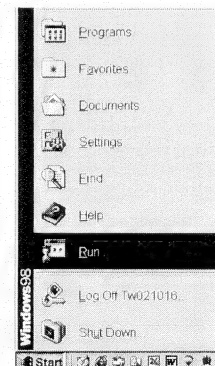


Fig. 4

3. At the submenu, type the letter of your computer's floppy disk drive followed by :EDID301 (for example, A:\EDID301, as shown in Fig. 5).

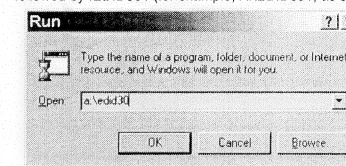


Fig. 5

4. Click **OK** button. The main menu appears (as shown in Fig. 6). This is for initialize alignment box.

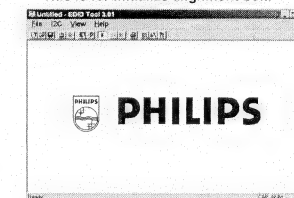


Fig. 6

Note 1: If the connection is improper, you will see the following error message (as shown in Fig. 7) before entering the main menu. Meanwhile, the (read EDID) function will be disable. At this time, please make sure all cables are connected correctly and fixedly, and the procedure has been performed properly.

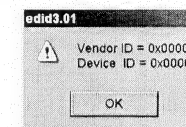


Fig. 7

Method 2: After create a shortcut of EDID301.EXE

: Double click EDID301 icon (as shown in Fig. 8) which is on the screen of Windows Wallpaper. Bring up main menu of EDID301 as shown in Fig. 9. This is for initialize alignment box.



Fig. 8

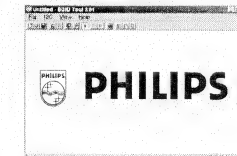
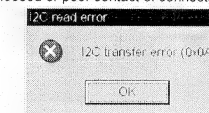


Fig. 9

Note 2: During the loading, EDID301 will verify the EDID data which just loaded from monitor before proceed any further function, once the data structure of EDID can not be recognized, the following error message will appear on the screen as below. Please confirm following steps to avoid this message.

1. The data structure of EDID was incorrect.
2. DDC IC that you are trying to load data is empty.
3. Wrong communication channel has set at configuration setup windows.
4. Cables loosed or poor contact of connection.



DDC Instructions (Continued)

Re-programming Analog DDC IC

Step 1: After initialize alignment box, connecting all cables and box as shown in Fig. 10

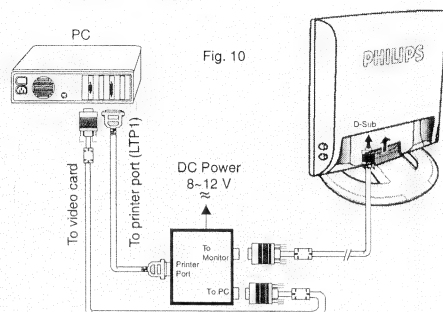


Fig. 10

Step 2: Read DDC data from monitor

1. Click icon as shown in Fig. 11 from the tool bar to bring up the Channels "Configuration Setup" windows as shown in Fig. 12.

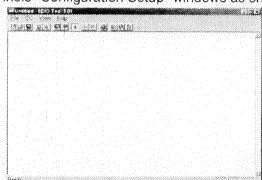


Fig. 11

2. Select the DDC2B as the communication channel. Select **"Enable"** & fill out **"F0"** for Mapped EDID page address as shown in Fig. 12.

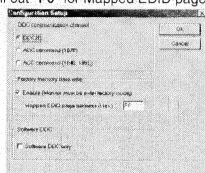


Fig. 12

3. Click OK button to confirm your selection.

4. Click  icon (Read EDID function) to read DDC EDID data from monitor. The EDID codes will display on screen as shown in Fig. 13.

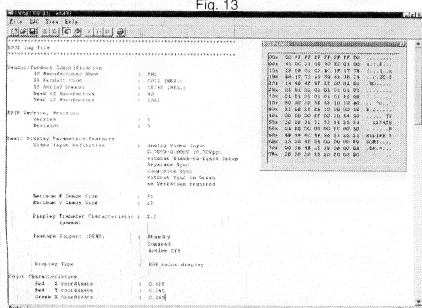


Fig. 13

Step 3: Modify DDC data (verify EDID version, week, year)


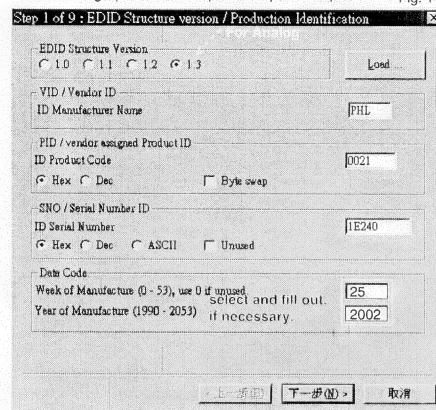
1. Click  (new function) icon from the tool bar, bring up Step 1 of 9 as shown in Fig. 14 .
EDID30 DDC application provides the function selection text change (select & fill out) from Step 1 to Step 9.

Fig. 14



Step 4: Modify DDC data (Monitor Serial No.)

1. Click **Next** , bring up Fig. 15.

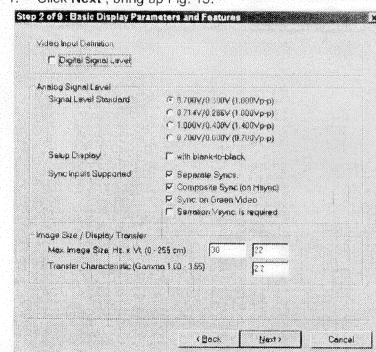


Fig. 15

2. Click **Next**, bring up Fig. 16.

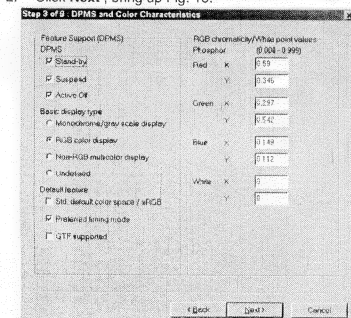


Fig. 16

3. Click **Next**, bring up Fig. 17.

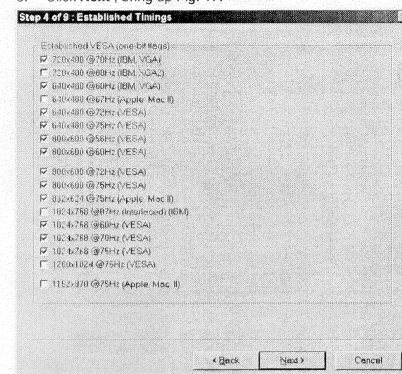


Fig. 17

4. Click **Next**, bring up Fig. 18.

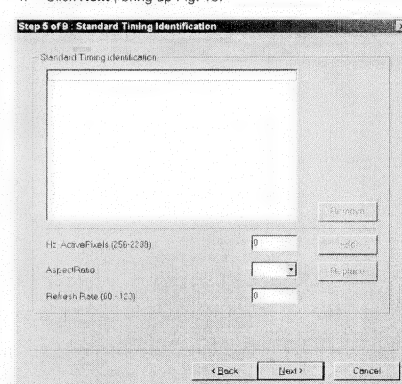


Fig. 18

5. Click **Next**, bring up Fig. 19.

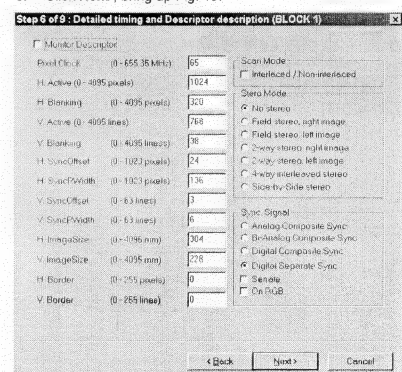


Fig. 19

6. Click **Next**, bring up Fig. 20.

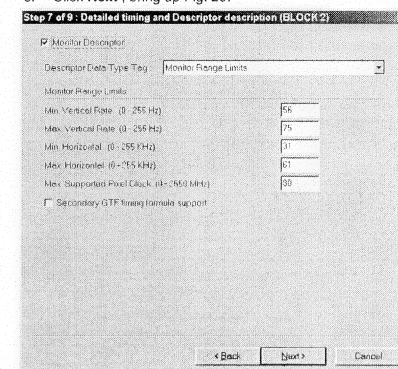


Fig. 20

7. Click **Next**, bring up Fig. 21.

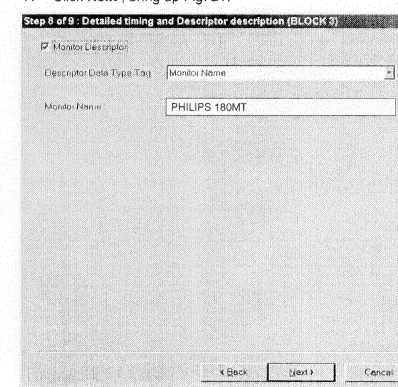


Fig. 21

8. Click **Next** , bring up Fig. 22.
 - Fill out serial number.
 - Click **Finish** to exit the Step window.

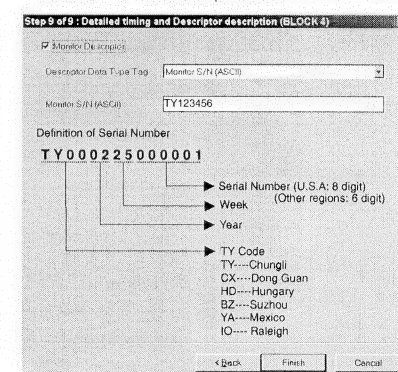


Fig. 22

Go to cover page

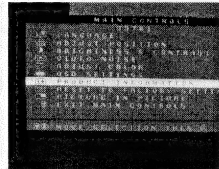
Step 5: Access Factory Mode for DDC data writing

Factory Mode:

How to Get into Factory Mode Menu

Push Menu "OK" & "ATUO" & " " buttons simultaneously until picture comes on the screen.

Press Menu "OK" button, bring up Factory mode indication as shown in Fig 23.



Factory Mode

Fig. 23

Step 6: Write DDC data

1. Click (Write EDID) icon from the tool bar to write DDC data. (0% ~ 100%, -> READY)
2. Click (Read EDID) to re-confirm it.

Step 7: Reconfirm Monitor Serial Number in User Mode

1. Go back to USER Mode as shown in Fig. 24 : Turn off monitor, then turn on monitor again => leave factory mode and return to User Mode directly.



User Mode Fig. 24

2. Select "Product information" => Press "OK" button => Bring up Fig. 25.

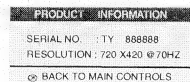


Fig. 25

3. To match with the serial number modification on EEPROM(OSD) See page 116~117.

Step 8: Save DDC data

Sometimes, you may need to save DDC data as a text file for using in other IC chip. To save DDC data, follow the steps below:

1. Click (Save) icon (or click "file"-> "save as") from the tool bar and give a file name as shown in Fig. 26. The file type is EDID30 file (*.ddc) which can be open in WordPad. By using WordPad, the texts of DDC data & table (128 bytes, hex code) can be modified. If DDC TEXTS & HEX Table are completely correct, it can be saved as .ddc file to re-load it into DDC IC & EEPROM for DDC Data application.

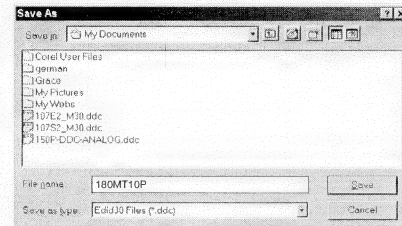


Fig. 26

2. Click Save.

Step 9: Load DDC data

1. Click from the tool bar.
2. Select the file you want to open as shown in Fig. 27.
3. Click Open.

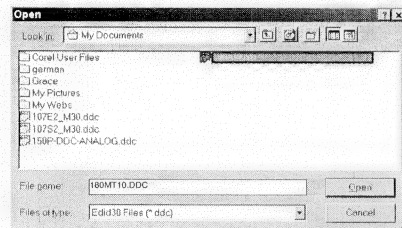


Fig. 27

Step 9: Exit DDC program

Pull down the File menu and select Exit as shown in Fig. 28.

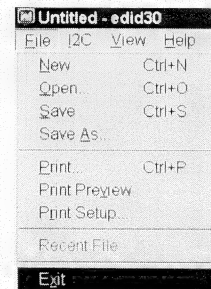


Fig. 28

DDC data of Analog

180MT10P LMT 35

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THE DISPLAY DATA CHANNEL (DDC 2B) CONTENT
(FOR 180MT10P/00C LCD Monitor / TV)

EDID log file

Vendor/Product Identification
ID Manufacturer Name : PHL
ID Product Code : 0022 (HEX.)
ID Serial Number : 1E240 (HEX.)
Week of Manufacture : 25
Year of Manufacture : 2002

EDID Version, Revision
Version : 1
Revision : 3

Basic Display Parameters/Features
Video Input Definition : Analog Video Input
0.700V/0.000V (0.70Vpp)
without Blank-to-Black Setup
Separate Sync
Composite Sync
without Sync on Green
no Serration required

Maximum H Image Size : 36
Maximum V Image Size : 29

Display Transfer Characteristic : 2.7
(Gamma)

Feature Support (DPMS): Standby
Suspend
Active Off

Display Type : RGB color display

Color Characteristics
Red X coordinate : 0.63
Red Y coordinate : 0.34
Green X coordinate : 0.28
Green Y coordinate : 0.61
Blue X coordinate : 0.14
Blue Y coordinate : 0.09
White X coordinate : 0.281
White Y coordinate : 0.311

Established Timings
Established Timings I : 720 x 400 @70Hz (IBM,VGA)
640 x 480 @60Hz (IBM,VGA)
640 x 480 @67Hz (Apple,Mac II)
640 x 480 @72Hz (VESA)
640 x 480 @75Hz (VESA)
800 x 600 @56Hz (VESA)
800 x 600 @60Hz (VESA)

Established Timings II : 800 x 600 @72Hz (VESA)
800 x 600 @75Hz (VESA)
832 x 624 @75Hz (Apple,Mac II)
1024 x 768 @60Hz (VESA)
1024 x 768 @70Hz (VESA)
1024 x 768 @75Hz (VESA)
1280 x 1024 @75Hz (VESA)

Manufacturer's timings: 1152 x 870 @ (Apple ,Mac II)

Standard Timing Identification #1
Horizontal active pixels:1280
Aspect Ratio : 5:4
Refresh Rate :60

Detailed Timing #1

Pixel Clock (MHz) : 25.18
H Active (pixels) : 640
H Blanking (pixels) : 160
V Active (lines) : 350
V Blanking (lines) : 99
H Sync Offset (F Porch)(pixels): 16
H Sync Pulse Width (pixels) : 96
V Sync Offset (F Porch)(lines) : 37
V Sync Pulse Width (lines): 2
H Image Size (mm) : 306
V Image Size (mm) : 230
H Border (pixels) : 0
V Border (lines) : 0
Flags : Non-interlaced
: Normal Display, No stereo
: Digital Separate sync.
: Negative Vertical Sync.
: Negative Horizontal Sync.

Monitor Descriptor #2
Serial Number : TY 123456

Monitor Descriptor #3
Monitor Name : PHILIPS 180MT

Monitor Descriptor #4
Monitor Range Limits
Min. Vt rate Hz : 56
Max. Vt rate Hz : 75
Min. Horiz. rate kHz : 30
Max. Horiz. rate kHz : 80
Max. Supported Pixel : 140

No secondary GTF timing formula supported.

Extension Flag : 0

Check sum : 7A (HEX.)

EDID data (128 bytes)

0:00 1:ff 2:ff 3:ff 4:ff 5:ff 6:ff 7:00
8:41 9:0c 10:21 11:00 12:40 13:e2 14:01 15:00
16:19 17:0c 18:01 19:03 20:6c 21:24 22:1d 23:aa
24:e8 25:4d 26:c2 27:a1 28:57 29:47 30:9c 31:23
32:17 33:48 34:4f 35:bf 36:ef 37:80 38:81 39:80
40:01 41:01 42:01 43:01 44:01 45:01 46:01 47:01
48:01 49:01 50:01 51:01 52:01 53:01 54:d6 55:09
56:80 57:a0 58:20 59:5e 60:63 61:10 62:10 63:60
64:52 65:08 66:32 67:e6 68:10 69:00 70:00 71:18
72:00 73:00 74:00 75:ff 76:00 77:20 78:54 79:59
80:20 81:20 82:31 83:32 84:33 85:34 86:35 87:36
88:0a 89:20 90:00 91:00 92:00 93:fc 94:00 95:50
96:48 97:49 98:4c 99:49 100:50 101:53 102:20 103:31
104:38 105:30 106:4d 107:54 108:00 109:00 110:00 111:fd
112:00 113:38 114:4b 115:1e 116:50 117:0e 118:00 119:0a
120:20 121:20 122:20 123:20 124:20 125:20 126:00 127:7a
**Note1: Address 78&79 is Factory code

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When the serial number inside DDC IC has been changed, the serial number inside EEPROM (in User mode, the serial number of monitor can be found by OSD as shown in Fig. 1 also.) should be changed at the same time.

Serial number modification in EEPROM (near CPU) for On Screen Display (Factory mode & User mode)

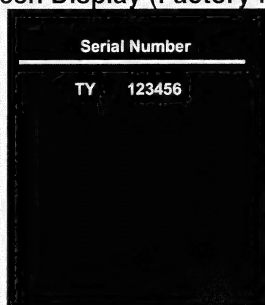


Fig. 1

Due to different communication structures were implement for DDC IC and EEPROM (serial number) application as below.

(15pin D-SUB) ----- CPU ----- DDC IC
I2C I2C

(15pin D-SUB) ----- CPU ----- EEPROM (OSD -> Serial number)
RS232 I2C

Update/Modify the serial number of monitor as shown in Fig. 1, please follow the steps as below.

1. connection of RS232 COMMUNICATION as shown in Fig. 2

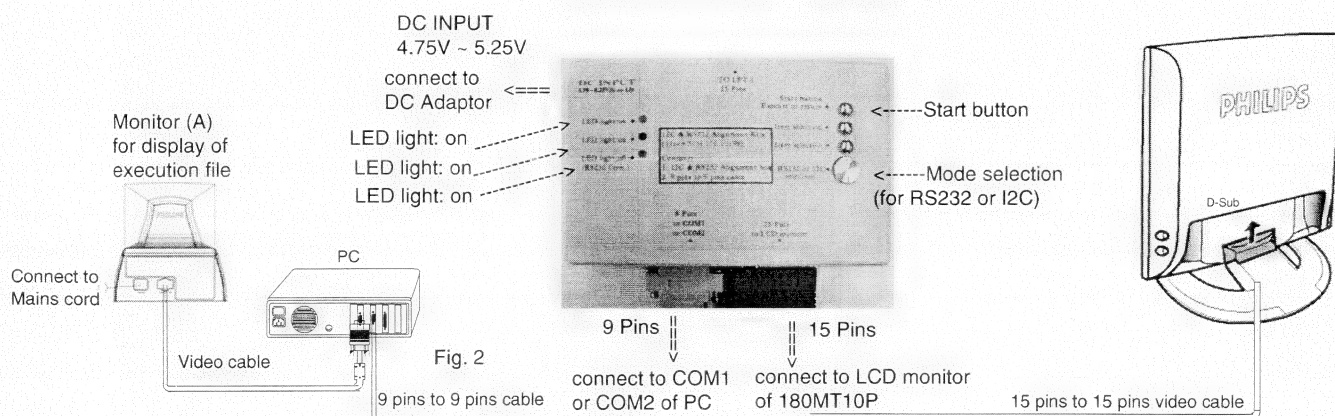


Fig. 2

I2C & RS232 Alignment Kits
(12nc = 3138 106 10198)

Contents :

1. I2C & RS232 Alignment box
2. 9 pins to 9 pins cable

- Connect DC adaptor (4.75 ~ 5.25Vdc) to Alignment box.
- 3 LED light should be at ON status at this moment.
- Connect 9 pins cable
- Connect 15pins D-SUB between Monitor and Alignment box.

Bring up Fig. 3



Fig. 3

- Press button1, the Red LED light should be at OFF status at this moment.

Bring up Fig.5.

(If it is not at RS232 COMMUNICATION status, Mode selection key can be used for exchange.

For example : RS232 COMMUNICATION, I2C COMMUNICATION)

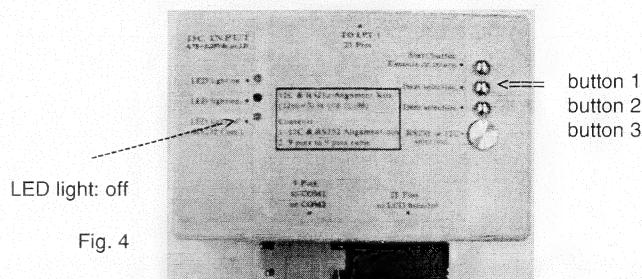


Fig. 4

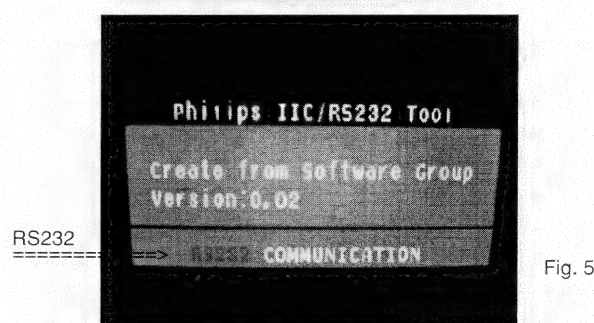


Fig. 5

2. Update/Modify serial number by DDCRUN (execution file) in Factory mode.

- make a directory and copy "DDCRUN.EXE", "DDC.CFG", "DDC.HEX" into folder as shown in Fig. 6.



Fig. 6

differ from "PHL18HITJ.PAL-DDC-ANALOG.ddc"

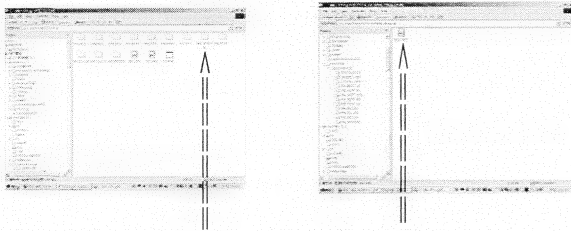


Fig. 7

PHL18HIT.PAL (HIT panel)

The file name of "DDC.HEX" has been defined by source code of DDCRUN.EXE.
The contents of DDC.HEX are different as shown in Fig. 6 & 7.
Make sure to put "DDC.HEX (for example : ddc contents (Fig.6) of PHL18HIT.PAL) together with "DDC.CFG" & "DDCRUN.EXE" each time.
It means [copy different DDC.HEX and put it together with "DDC.CFG" & "DDCRUN.EXE"] each time for application of serial number.

In DOS mode : (made directory already)

C:\WINDOWS>CD\ (press Enter)
C:\>CD IICRS232 (press Enter)
C:\IICRS232>CD RS232EXE (press Enter)
C:\IICRS232\RS232EXE>DIR (press Enter)



Fig. 8

Folder with "DDC.CFG", "DDC.HEX",
"DDCRUN.EXE" as shown in Fig. 8.

C:\IICRS232\RS232EXE>EDIT DDC.CFG (press Enter)

- Config. setting "2 58 F0" as shown in Fig. 9 for 180MT10P.

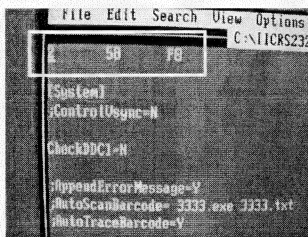


Fig. 9

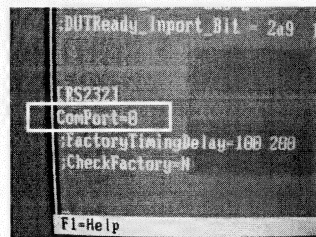


Fig. 10

- Check ComPort setting as shown in Fig. 10 for RS232 (9 pins) cable.

3. Serial number application - Barcode format setting

C:\IICRS232\RS232EXE>DDCRUN (press Enter)

Bring up : definition of Barcode format setting as shown in Fig. 11.

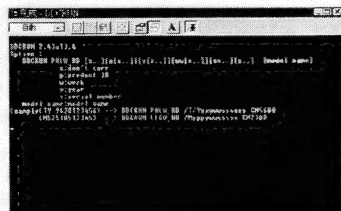


Fig. 11

C:\IICRS232\RS232EXE>DDCRUN PHLW_RD /T/YxyYWWSSSSSS (press Enter)

Bring up : contents of DDCRUN as shown in Fig. 12.

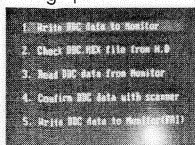


Fig. 12

"PHLW_RD (fixed name)" was defined by source code of DDCRUN for Philips models already.

As shown in Fig. 12 (1. write DDC data to monitor), press Enter
Bring up : contents for fill out Serial number as shown in Fig. 13.

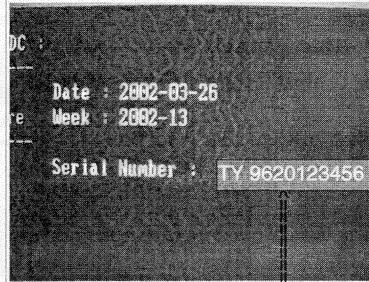


Fig. 13

For example : Fill out "TY 9620123456"

Press Enter

Bring up : Fig. 14 to ask "Entry Factory mode".

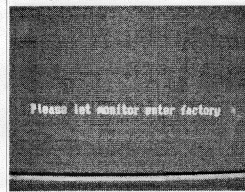


Fig. 14

Access Factory Mode

Step 1 :

Turn off monitor.

Step 2 :

[Push Menu " OK " & " AUTO " buttons at the same time and hold it until comes out "Windows screen"] + [Press power " " button and release it instantly]

Press Enter

Bring up : Fig. 15 (a few seconds only)



Fig. 15

Verify Serial number :

By OSD as shown in Fig. 16 & 17 to verify the Serial number.

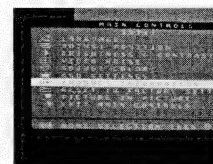


Fig. 16



Fig. 17

Serial number - (Before)



Fig. 18

Serial number - (After)



<==Fill out "Q" : Quit Serial number application.

<==Press "ESC" : Go back to DOS mode.
Then, finish.

◀◀ Go to cover page

0. Warning

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the unit via a wrist wrap with resistance. Keep components and tools also at the same potential !

1. Servicing of SMDs (Surface Mounted Devices)

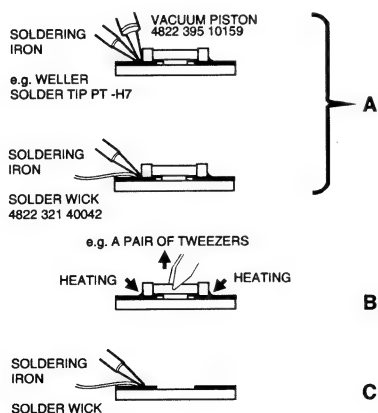
1.1 General cautions on handling and storage

- Oxidation on the terminals of SMDs results in poor soldering. Do not handle SMDs with bare hands.
- Avoid using storage places that are sensitive to oxidation such as places with sulphur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity. The capacitance or resistance value of the SMDs may be affected by this.
- Rough handling of circuit boards containing SMDs may cause damage to the components as well as the circuit boards. Circuit boards containing SMDs should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress. Never rub or scrape chip components as this may cause the value of the component to change. Similarly, do not slide the circuit board across any surface.

1.2 Removal of SMDs

- Heat the solder (for 2-3 seconds) at each terminal of the chip. By means of litz wire and a slight horizontal force, small components can be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 1A)

Fig. 1 DISMOUNTING



- While holding the SMD with a pair of tweezers, take it off gently using the soldering iron's heat applied to each terminal (see Fig. 1 B).
- Remove the excess solder on the solder lands by means of litz wire or a solder sucker (see Fig. 1C).

1.3 Caution on removal

- When handling the soldering iron, use suitable pressure and be careful.
- When removing the chip, do not use undue force with the pair of tweezers.
- The soldering iron to be used (approx. 30 W) should

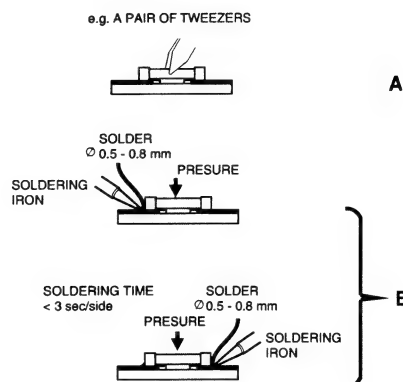
preferably be equipped with a thermal control (soldering temperature: 225 to 250 °C).

- The chip, once removed, must never be reused.

1.4 Attachment of SMDs

- Locate the SMD on the solder lands by means of tweezers and solder the component on one side. Ensure that the component is positioned correctly on the solder lands (see Fig. 2A).
- Next complete the soldering of the terminals of the component (see Fig. 2B).

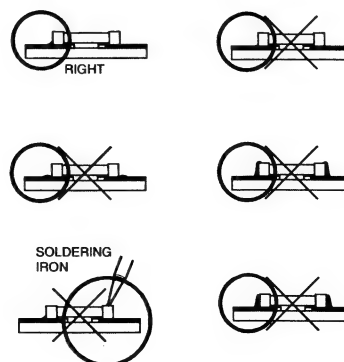
Fig. 2 MOUNTING



2. Caution when attaching SMDs

- When soldering the SMD terminals, do not touch them directly with the soldering iron. The soldering should be done as quickly as possible, care must be taken to avoid damage to the terminals of the SMDs themselves.
- Keep the SMD's body in contact with the printed board when soldering.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 °C).
- Soldering should not be done outside the solder land.
- Soldering flux (of rosin) may be used, but should not be acidic.
- After soldering, let the SMD cool down gradually at room temperature.
- The quantity of solder must be proportional to the size of the solder land. If the quantity is too great, the SMD might crack or the solder lands might be torn loose from the printed board (see Fig. 3).

Fig. 3 Examples



Colour adjustment

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LCD COLOUR ANALYZER - CA110

1. SUMMARY

The LCD Colour Analyzer CA-110 was designed to upgrade the white-balance process on production lines for colour LCD televisions and computer colour LCD panels in the colour LCD industry. The CA-110 consists of a main unit and a measuring probe. The measuring probe utilizes an optical system suitable for measurement of colour LCDs and is equipped with a viewfinder to verify the area to be measured.

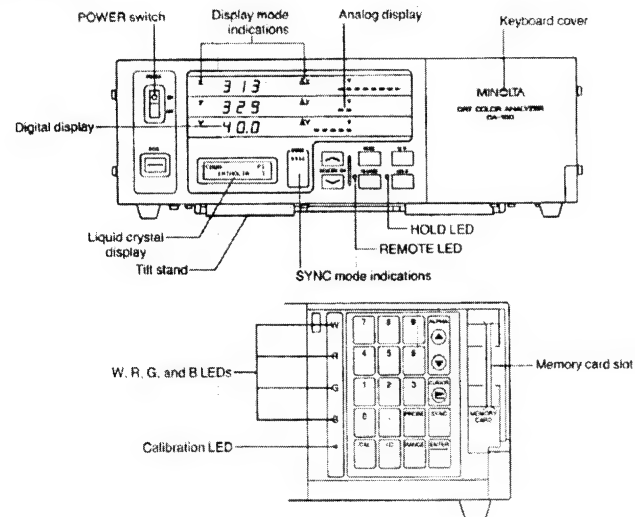
2. APPLICATIONS

- * White-balance adjustment and inspection on LCD production lines.
- * Quality control and shipping inspection by LCD manufacturers.
- * Inspection of LCDs upon receipt by computer manufacturers.

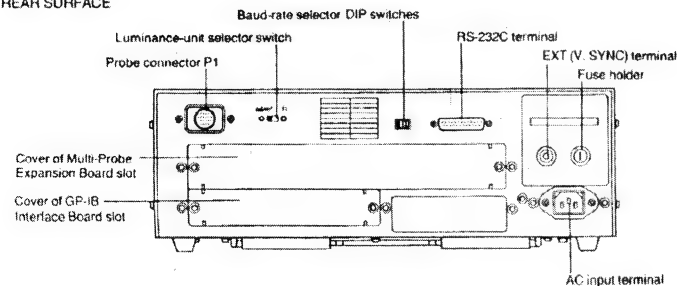
NAMES OF PARTS

Main Unit

FRONT SURFACE



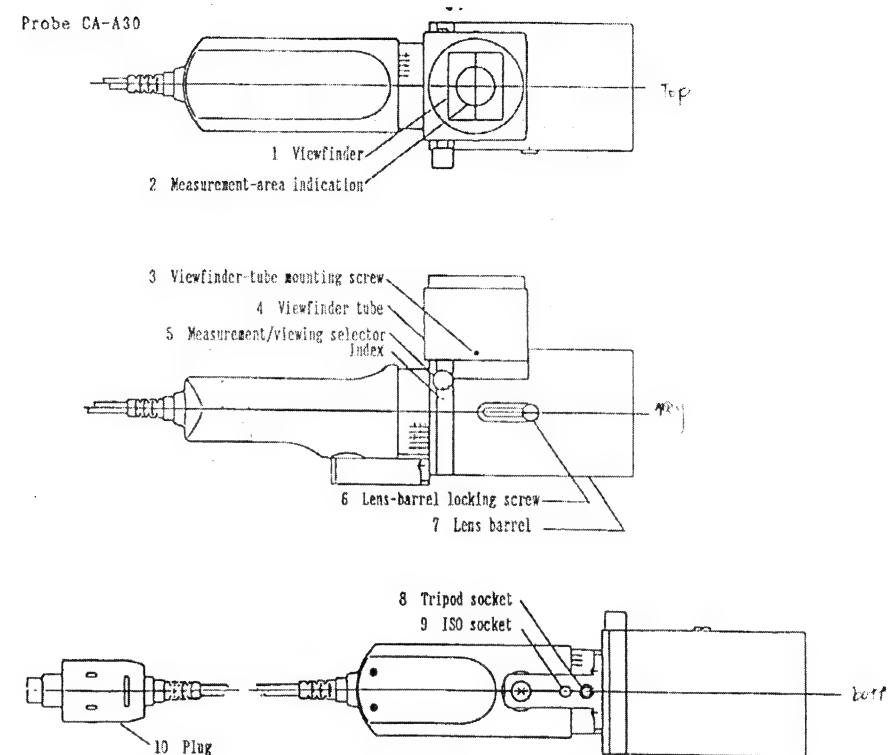
REAR SURFACE





Colour Adjustment

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Probe CA-A30



- | | |
|-----------------------------------|---|
| 1. Viewfinder | Shows image seen by measuring probe. |
| 2. Measurement-area indication | Indicates area to be measured. |
| 3. Viewfinder-tube mounting screw | Removing these two screws (one on each side) allows the viewfinder tube to be removed to clean viewfinder, etc. |
| 4. Viewfinder tube | Can be moved to minimize the effects of surrounding light and provide the best view of the viewfinder image. |
| 5. Measurement/viewing selector | Moves internal mirror; set to  for measurement and to  for viewing or for zero calibration. |
| 6. Lens-barrel locking screw | Locks lens barrel at a fixed position. |
| 7. Lens barrel | Can be moved back and forth to set measurement angle. |
| 8. Tripod socket | Can be used to mount measurement probe on a tripod. Depth: 6mm. |
| 9. ISO socket | Can be used to mount measurement probe. ISO $\varnothing 5\text{mm}$, depth: 6mm |
| 10. Plug | Used to connect measuring probe to main unit or optional Multi-Probe Expansion Board. |

Colour adjustment

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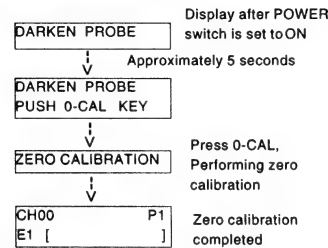
ZERO CALIBRATION

Zero calibration is performed to determine the output of the measuring probe when no light reaches the sensor and to set this as the zero point to which all other measurements are referenced. Zero calibration must be performed after the POWER switch has been set ON before taking any measurements.

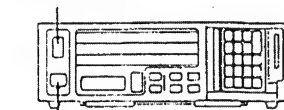
To perform zero calibration:

- Before performing zero calibration, check that the measuring probe has been connected to probe connector P1.

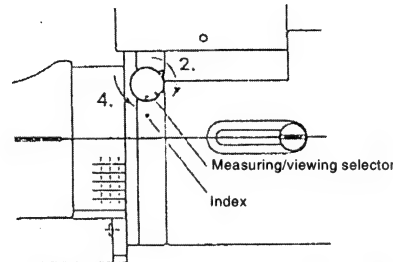
- Check that the POWER switch is set to ON.
- Set the measuring/viewing selector to the (viewing) position. (An image can be seen in the viewfinder, but no light will reach the sensor.)
- Press 0-CAL.
 - If zero calibration is being performed immediately after the POWER switch has been set to ON, press 0-CAL after "PUSH 0-CAL KEY" appears in the liquid crystal display.
- Set the measuring/viewing selector to the position. Measurements will be started immediately.



1. POWER switch



3. 0-CAL



- "E1" will appear in the liquid crystal display the first time the CA-110 is used after shipment because no standard color has been set.
- Zero calibration can be performed at any time, even if "PUSH 0-CAL KEY" is not shown in the liquid crystal display.

Note:

- If the luminance of the LCD to be measured is 5.00cd/m² (1.46 fL) or less, wait at least five minutes after setting POWER switch to ON before performing zero calibration. Also, when measuring LCDs of low luminance, zero calibration should be performed approximately once an hour to ensure accuracy.
- If the ambient temperature changes after zero calibration has been performed, perform zero calibration again.
- Do not press any key while zero calibration is being performed. If a key is pressed, the time required for zero calibration will become longer.

To check if zero calibration was performed correctly, place the receptor area of the probe face down on a flat surface so that no light reaches the receptor area.

If the display shown at right appears in the liquid crystal display, perform zero calibration again.

- Even when "OFFSET ERROR" appears in the liquid crystal display, if light reaches the receptor area of the measuring probe, measured values will appear in the digital and analog displays. However, these values will not be accurate.

OFFSET ERROR
PUSH 0-CAL KEY

If any other display is shown, zero calibration was performed correctly.

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Colour Adjustment

SETTING MEASUREMENT AREA

Measurement areas of $\varnothing 25\text{mm}$ and $\varnothing 50\text{mm}$ can be selected by extending or retracting the lens barrel. The $\varnothing 25\text{mm}$ measurement area can be used for measuring LCDs with 2 -inch or greater diagonals; the $\varnothing 50\text{mm}$ measurement area can be used for measuring LCDs with 4 -inch or greater diagonals.

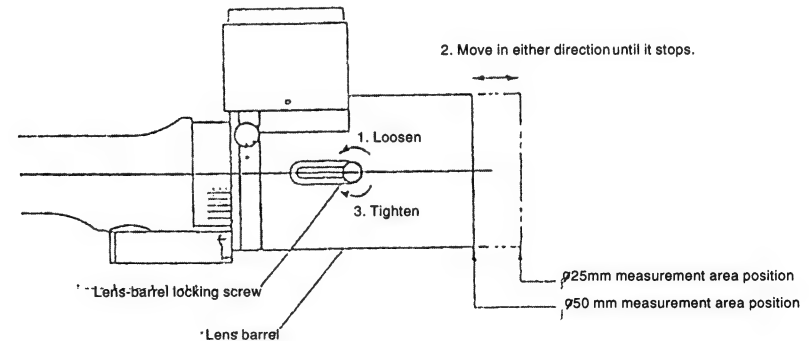
Set the measurement area :

Using a slotted screwdriver, loosen the lens - barrel locking screw.

Slide the lens barrel to the position corresponding to the desired measurement area. The lens barrel should be slid in the desired direction until it stops. Extending the lens barrel fully sets the $\varnothing 25\text{mm}$ measurement area; retracting the lens barrel fully sets the $\varnothing 50\text{mm}$ measurement area.

Use the screwdriver to tighten the lens - barrel locking screw and lock the lens barrel in position.

Changing the measurement area also changes the measurement angle, this may result in differences between values measured with the $\varnothing 25\text{mm}$ measurement area and those measured with the $\varnothing 50\text{mm}$ measurement area to the viewing - angle characteristics of the LCD. For this reason, it is recommended that the measurement area be constant for all measurements.



Colour adjustment

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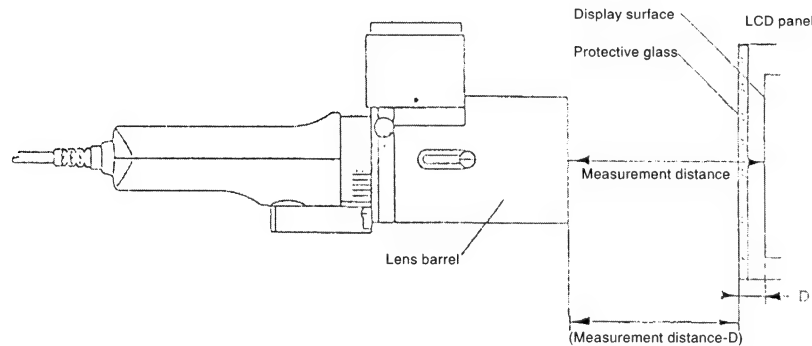
SETTING MEASUREMENT DISTANCE

The measurement distance (the distance from the front of the measuring probe's lens barrel to the display surface of the LCD) should be set using a ruler according to the procedure below.

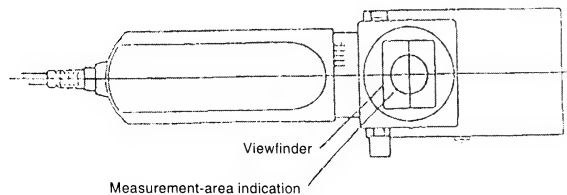
1. Mount the measuring probe on a tripod or other stand and mount the LCD on a suitable stand.
2. While using a ruler to measure the distance from the front of the measuring probe's lens barrel to the LCD's display surface, move the measuring probe or the LCD until the distance is the correct distance for the measurement area in use.

| | | |
|-----------------------|-------------|--------------|
| measurement area | Ø 25mm | Ø 50mm |
| measurement distance* | 135mm+/-5mm | 210mm+/-10mm |

* Distance from the tip of the measuring probe's lens barrel to the LCD's display surface.



3. While looking through the viewfinder, move the measuring probe or LCD until the LCD section to be measured is inside the measurement-area indication in the viewfinder.



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White Balance Adjustment

Alignment procedure

1. Turn on 180MT LCD/TV monitor.
2. Turn on the Timing/Pattern generator. See Fig. 1
Setting generator to provide CROSS-Hatch pattern at
Resolution : 1024 x 768
Timing : H= 48 KHz
V= 60 Hz
3. Preset LCD colour Analyzer CA-110
- Remove the lens protective cover of probe CA-A30.
- Set Measuring/viewing selector to Measuring position for reset analyzer. (Zero calibration) as Fig. 2
- Turn on the colour analyzer (CA-110).
- Press 0-CAL button to starting reset analyzer. See Fig. 3



Fig. 1

Fig. 2

0-CAL

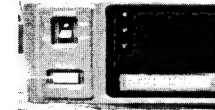
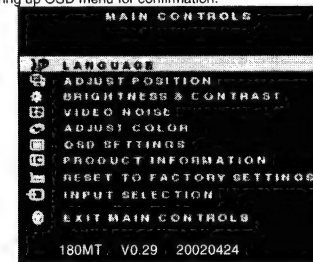


Fig. 3

4. Entering factory adjustment mode of LCD/TV Monitor.
- To hold OK and AUTO buttons then power on the monitor. Press OK to bring up OSD menu for confirmation.



Factory mode

Note : after alignment, please reset OSD to user's mode for normal operation. Otherwise, the monitor won't enter power saving mode and showing full white picture all the time as no video signal supplied. To leave factory mode by restart the monitor.

5. Adjust OSD menu to lower position of screen (i.g. adjust V-position to value "0" at submenu of OSD Setting.
6. Setting Brightness and Contrast
- Adjust Brightness to value "70".
- Adjust Contrast to value "50".



7. Switch light probe to Viewing position.
8. Move the Lens barrel forward or backward to get clear image as shown in Fig. 4
9. Switch light probe to Measuring position. It should be able to indicate colour value on the CA-110.

Colour Adjustment

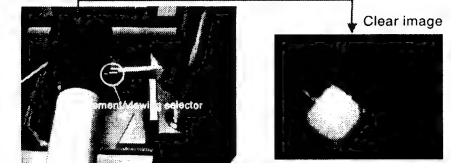
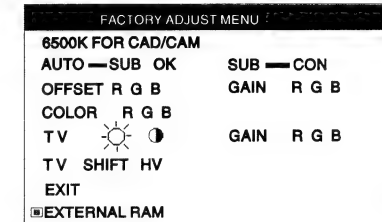


Fig. 4

10. Setting pattern to full white picture.
11. Press OK then select LCD TV V1.28 20011030 by button.
12. Press OK to bring up submenu as following windows.



9300° K

13. Press ▲ or ▼ buttons to select R G B. Increase/decrease value by press + - or + - buttons until the X, Y co-ordinates as below:
x= 0.281 ± 0.005
y= 0.311 ± 0.005
Y>= 250 nits

6500° K

14. Setting X, Y value listed as below:
X= 0.312 ± 0.005
Y= 0.338 ± 0.005
Y>= 250 nits

Alignment hits: 1. R for x value, G for y value, B for Y value on the colour analyzer.
2. If the colour analyzer has been calibrated and preset colour temperature in it. Please switch to correct setting in accordance with colour settings.

15. Gray scale checking
- Switch Timing/pattern generator to
Pattern: 32 gray scale
Timing: 1024 X 768 60Hz 48KHz
- Setting both Brightness and Contrast to 50 (Value).
- Check black and white scale are visible clearly across the screen.
See Fig. 1

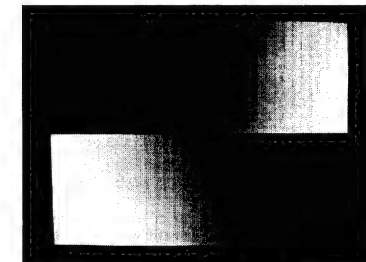


Fig. 1

Note: The bright scale will be saturated, if Y is too large. The dark scale will be invisible, if Y is too small. Re-alignment or review procedure again to correct this.

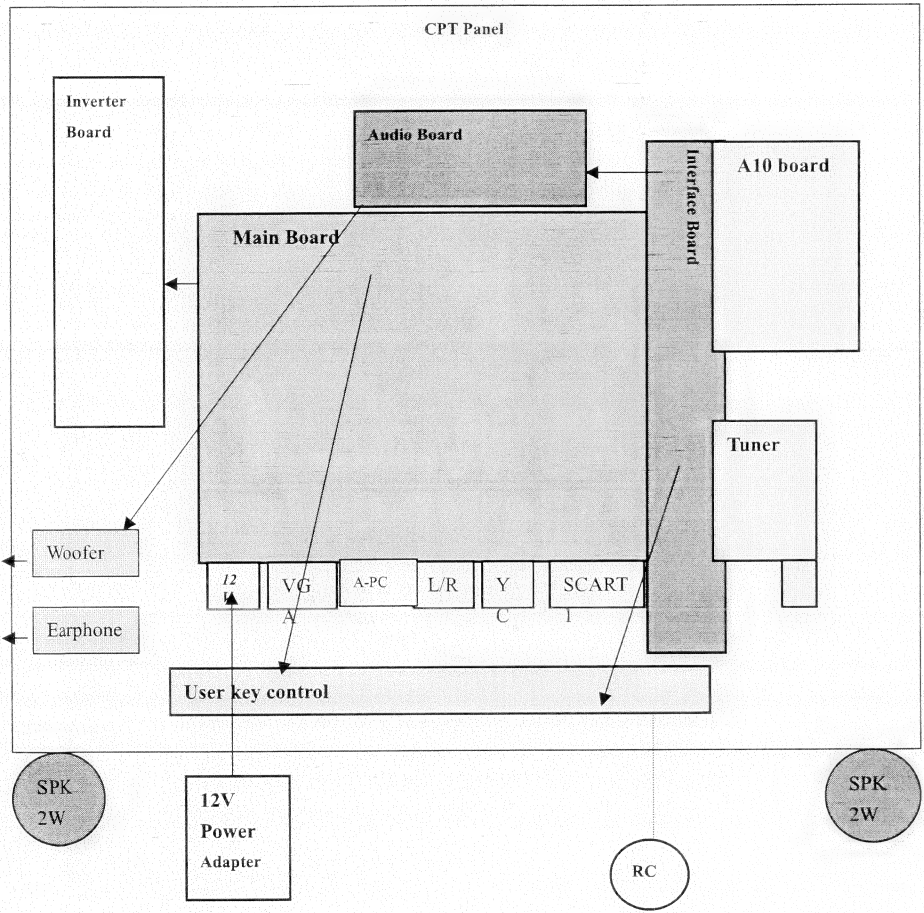
Block Diagram

Control Panel Diagram and C.B.A.

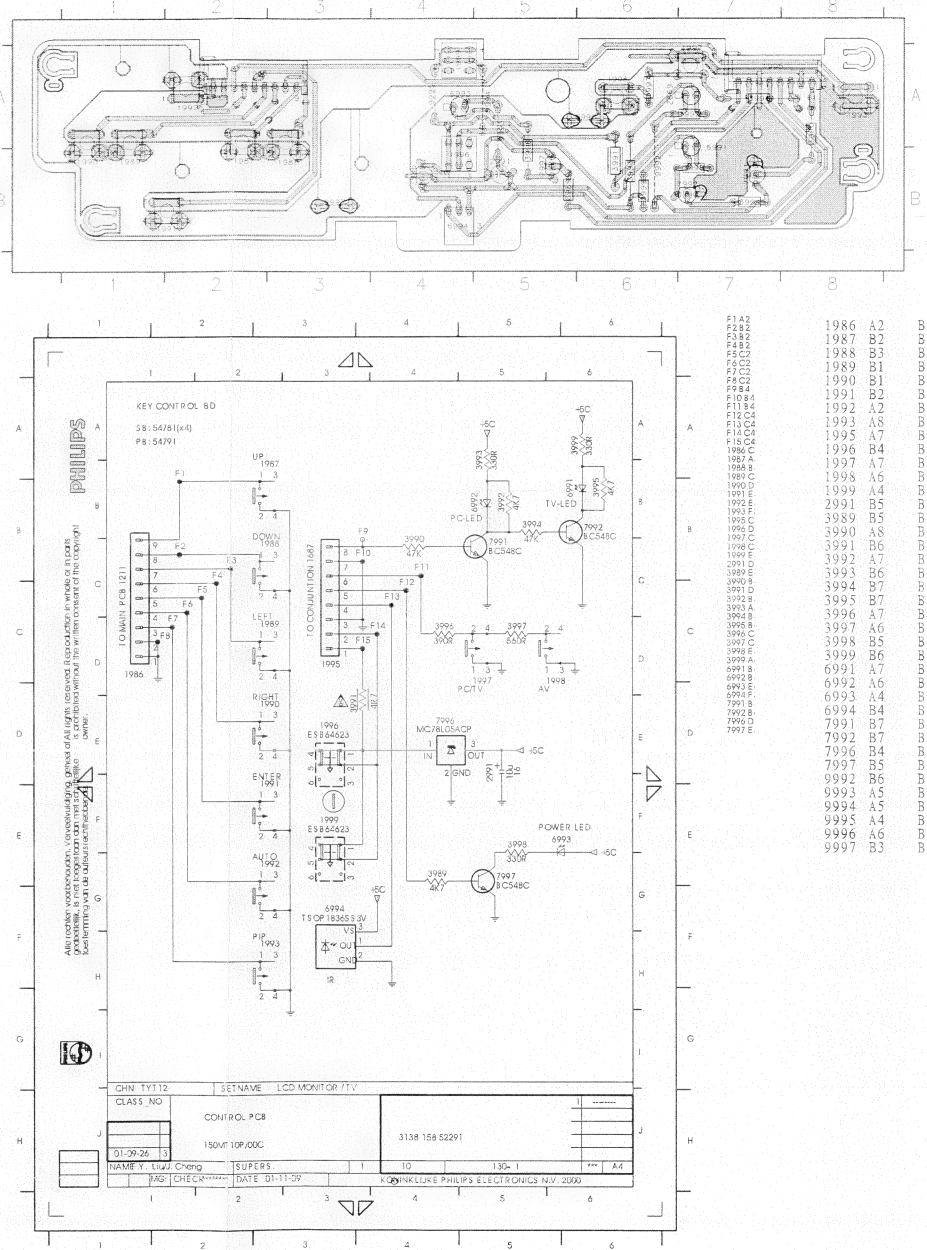
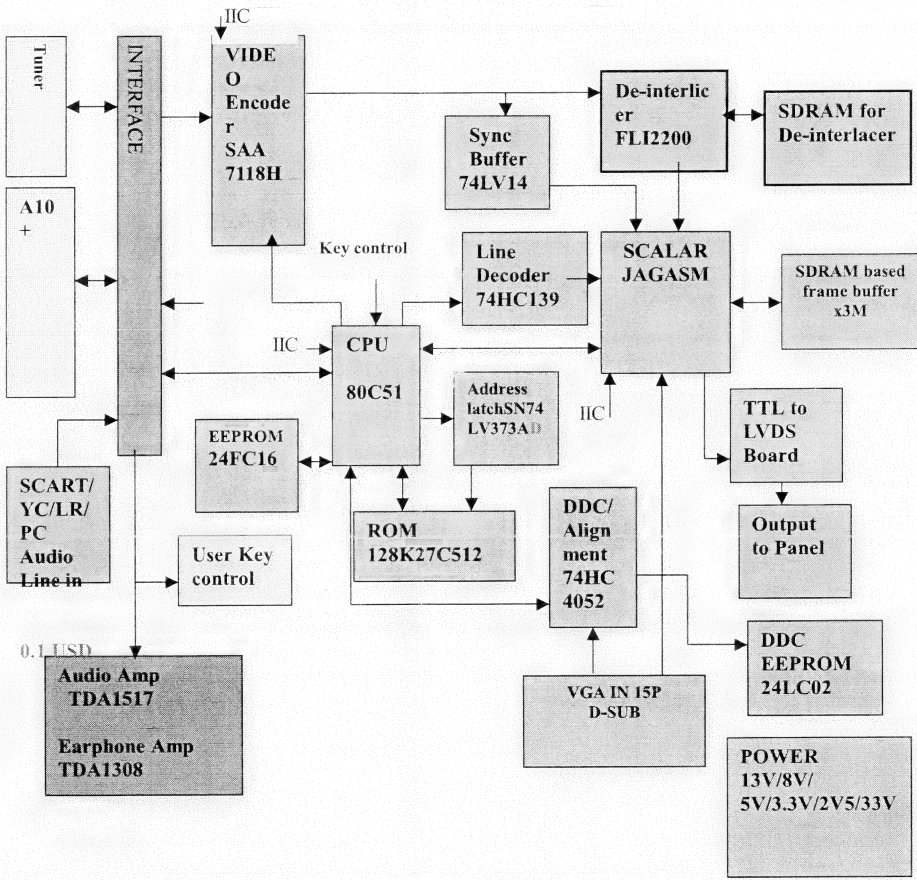
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Architecture of Multi-function TV-Monitor

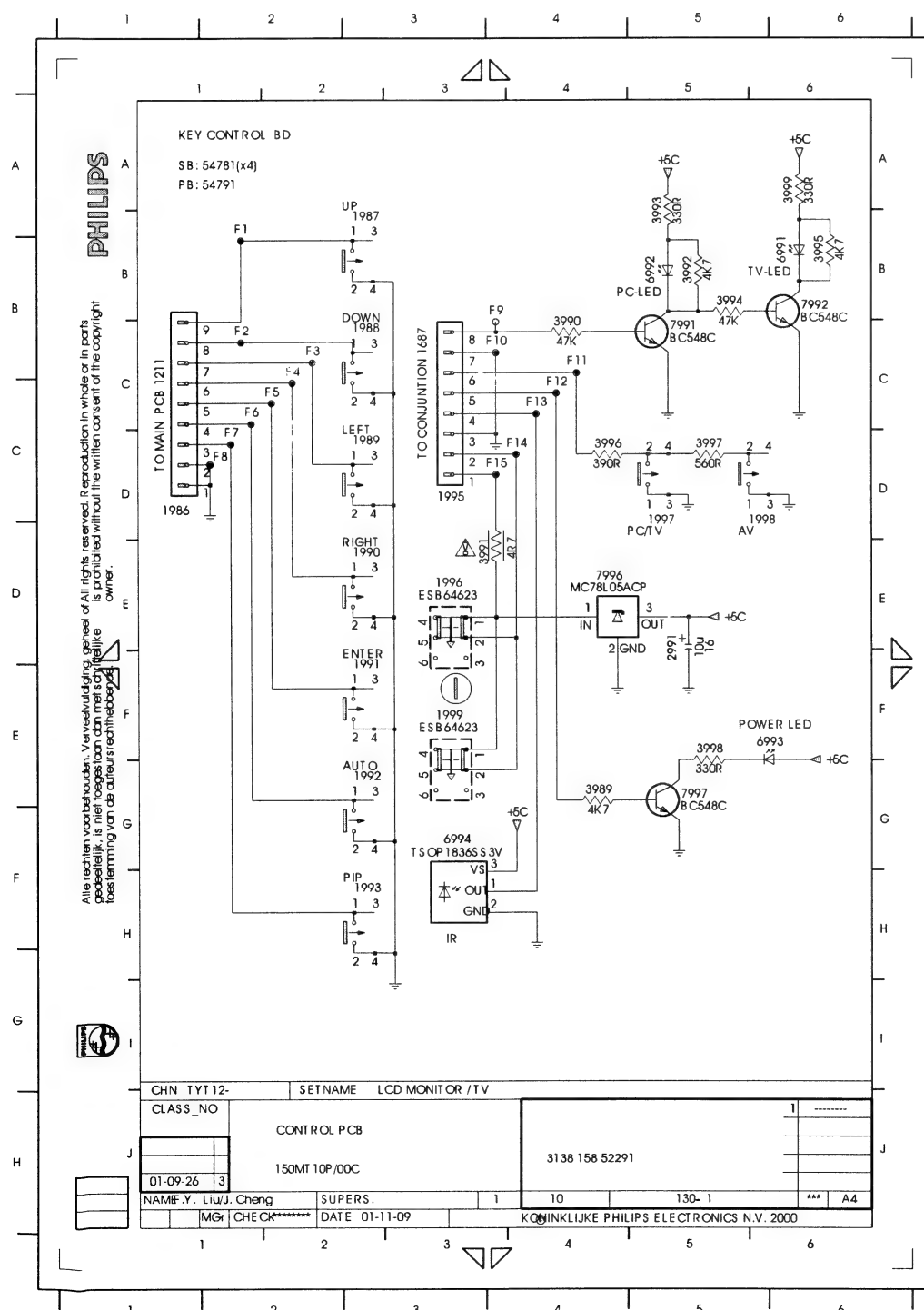
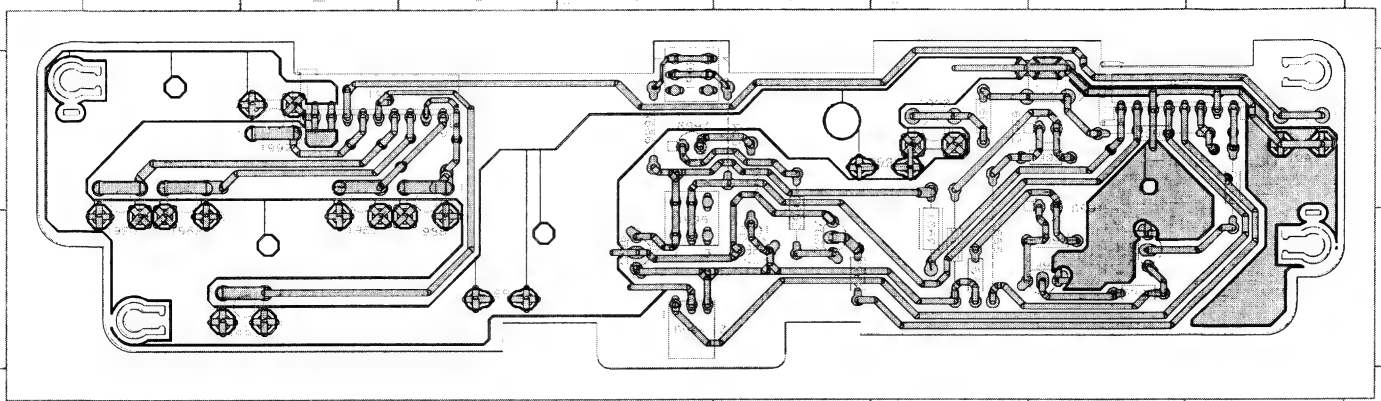


Multi-function TV-MONITOR FUNCTION BLOCK(W/ PIP)
-Base on A10+ & Sag scalar JAGASM



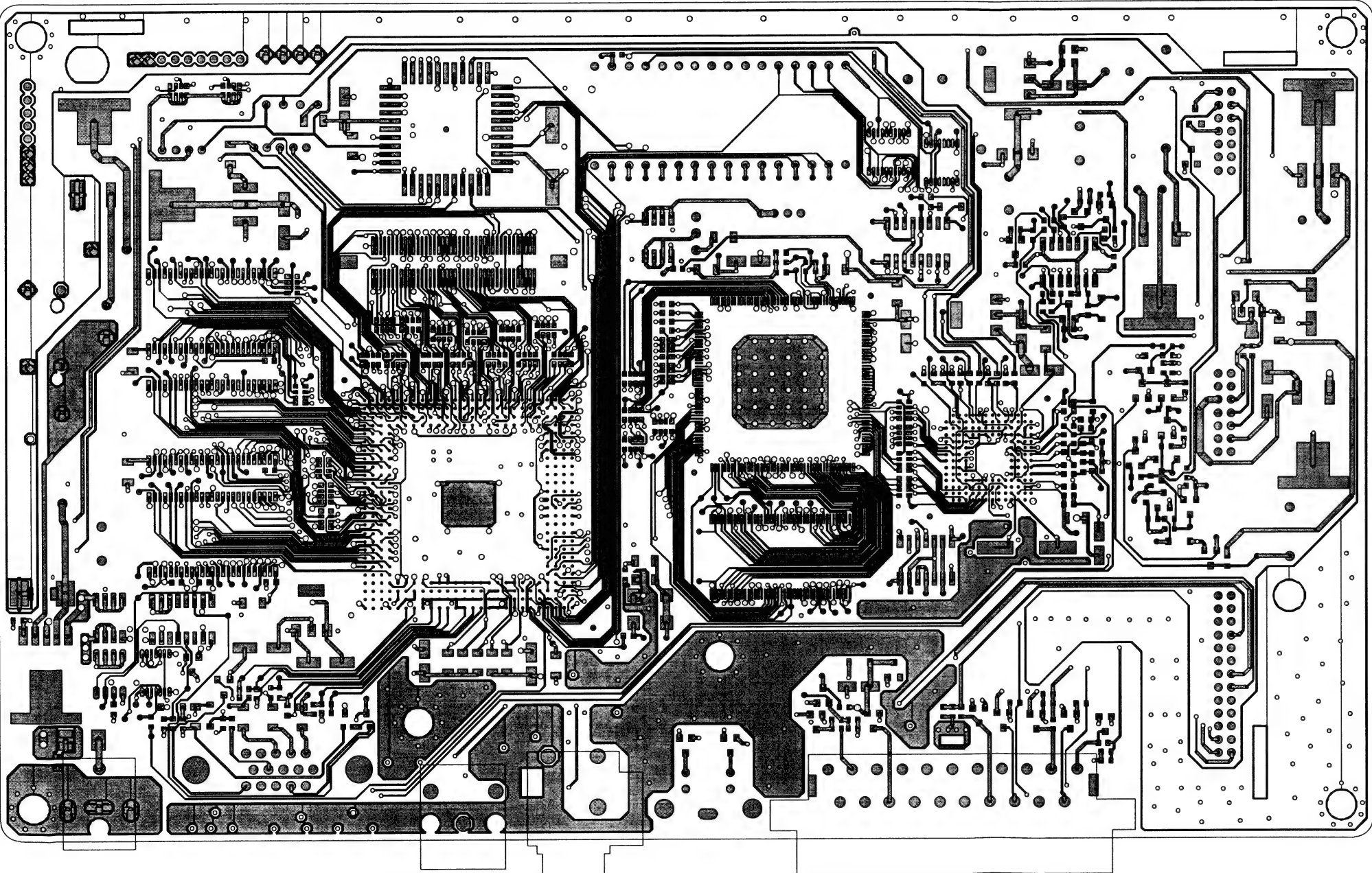
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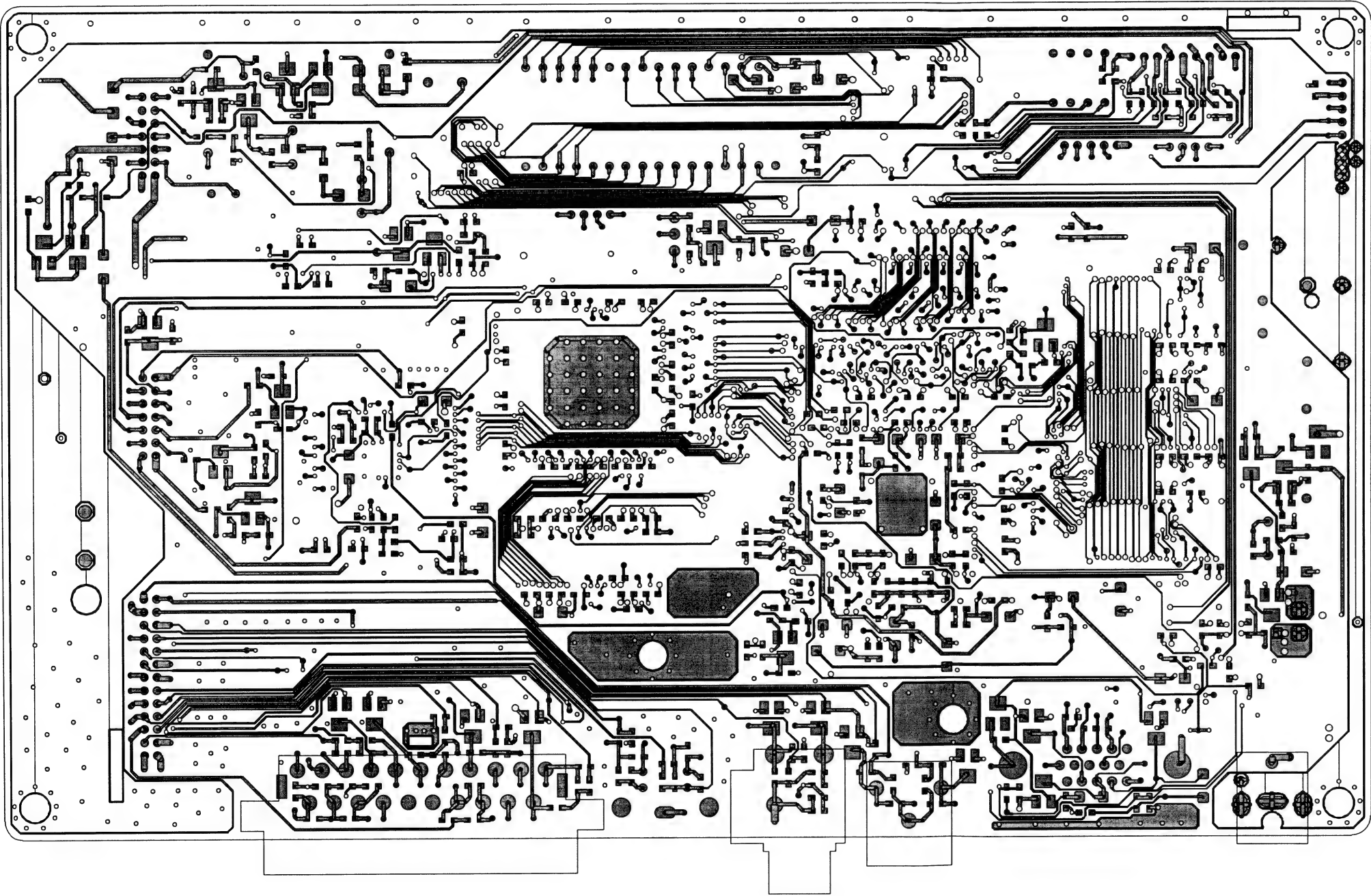
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| F6 C2 | 1989 | B1 | B |
| F7 C2 | | | |
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| F9 B4 | | | |
| F10 B4 | 1991 | B2 | B |
| F11 B4 | 1992 | A2 | B |
| F12 C4 | | | |
| F13 C4 | 1993 | A8 | B |
| F14 C4 | 1995 | A7 | B |
| F15 C4 | | | |
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| 1987 A | 1997 | A7 | B |
| 1988 B | | | |
| 1989 C | 1998 | A6 | B |
| 1990 D | 1999 | A4 | B |
| 1991 E | | | |
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| 1993 F | | | |
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| 1996 D | | | |
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| 1998 C | 3991 | B6 | B |
| 1999 E | 3992 | A7 | B |
| 2991 D | | | |
| 3989 E | 3993 | B6 | B |
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| 3991 D | 3995 | B7 | B |
| 3992 B | | | |
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| 3994 B | 3997 | A6 | B |
| 3995 B | 3998 | B5 | B |
| 3996 C | 3999 | B6 | B |
| 3997 C | | | |
| 3998 E | 6991 | A7 | B |
| 3999 A | 6992 | A6 | B |
| 6991 B | 6993 | A4 | B |
| 6992 B | 6994 | B4 | B |
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| 6994 F | | | |
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| 7992 B | | | |
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| | 9992 | B6 | B |
| | 9993 | A5 | B |
| | 9994 | A5 | B |
| | 9995 | A4 | B |
| | 9996 | A6 | B |
| | 9997 | B3 | B |

Scaler Board C.B.A.



| | | | | |
|-----------|-----------|-----------|-----------|-----------|
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| 2441 B1 A | | | | |

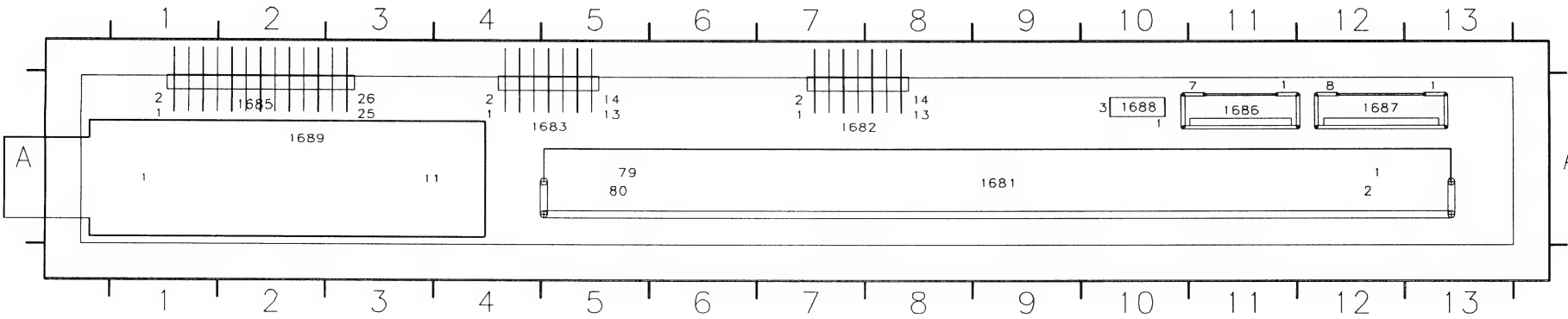
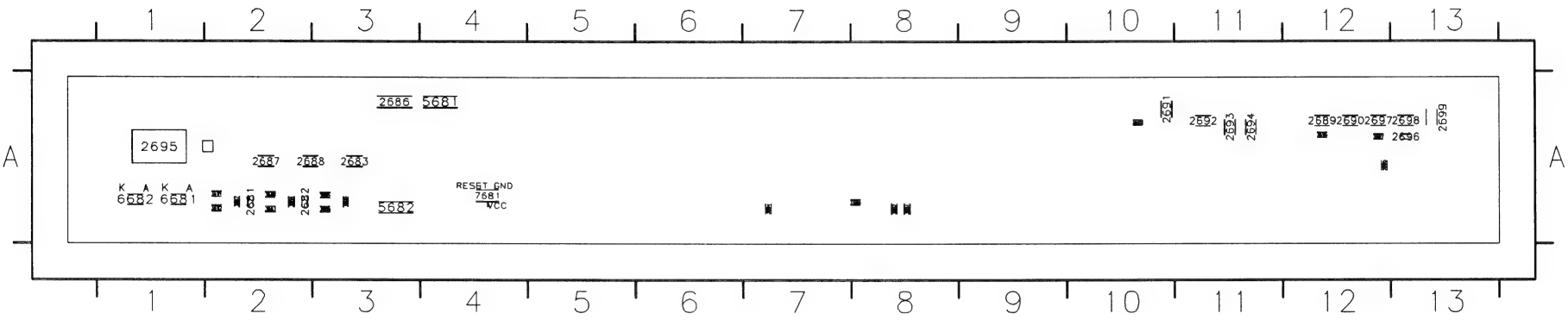
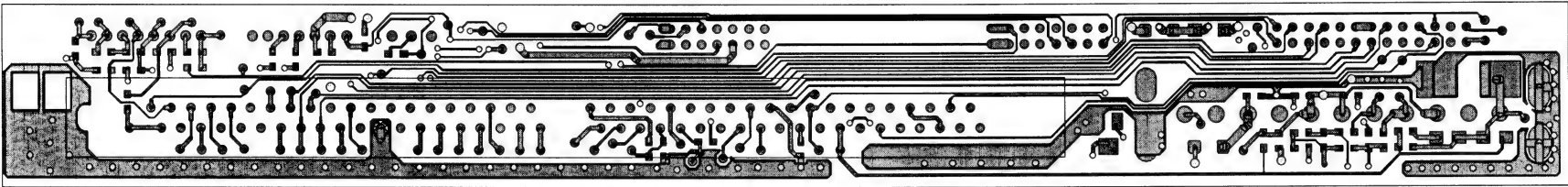
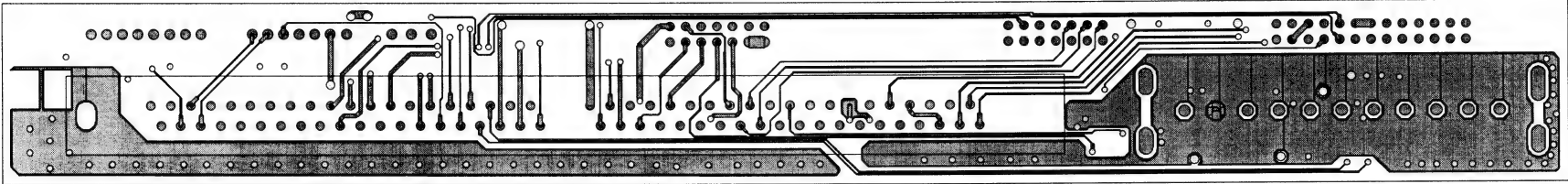
Scaler Board (C.B.A)



Hmc.map

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| 1202 A2 | 3302 B1 | 3615 B3 | 1003 A2 |
| 1331 B2 | 3303 B1 | 3623 B3 | 1011 A2 |
| 1371 A2 | 3304 B1 | 3625 B3 | 1021 A1 |
| 1401 B4 | 3306 B1 | 3626 B3 | 1203 A4 |
| 2001 B1 | 3307 B1 | 5026 A4 | 1211 A4 |
| 2014 A4 | 3309 B1 | 5051 A1 | 1301 B4 |
| 2022 A4 | 3310 B1 | 5056 A3 | 1351 A4 |
| 2023 A4 | 3311 B1 | 5201 A2 | 1406 A1 |
| 2029 A3 | 3312 B1 | 5202 A1 | 1601 B2 |
| 2037 A4 | 3313 B1 | 5301 B1 | 1631 B2 |
| 2038 A4 | 3315 B2 | 5303 B1 | 1632 B3 |
| 2051 A1 | 3316 B2 | 5306 B1 | 1633 B3 |
| 2053 B1 | 3320 B1 | 5331 B2 | 1635 B1 |
| 2055 B2 | 3329 B1 | 5338 B1 | 2006 B4 |
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| 2058 B1 | 3349 A1 | 5362 A1 | 2009 A4 |
| 2203 A2 | 3351 A1 | 5421 B4 | 2017 A4 |
| 2301 B1 | 3352 A1 | 5426 A4 | 2020 A2 |
| 2302 B1 | 3353 B1 | 5451 A3 | 2021 A1 |
| 2303 B1 | 3355 A1 | 5456 A3 | 2026 A1 |
| 2305 B1 | 3369 A2 | 5457 A3 | 2027 A1 |
| 2326 B2 | 3382 A2 | 5615 B3 | 2030 A1 |
| 2327 B2 | 3383 A2 | 6006 B1 | 2417 B1 |
| 2347 B2 | 3384 A2 | 6022 A4 | 3023 A1 |
| 2349 B2 | 3385 A2 | 6023 A4 | 3040 A1 |
| 2353 B2 | 3386 A2 | 6026 A3 | 5005 A4 |
| 2355 B2 | 3387 A2 | 6027 A4 | 5007 A4 |
| 2357 B2 | 3388 A2 | 6031 A4 | 5022 A1 |
| 2359 B2 | 3389 A2 | 6301 B1 | 7202 A4 |
| 2380 A1 | 3390 A2 | 6302 B1 | 7203 A2 |
| 2387 A1 | 3391 A2 | 6315 B1 | |
| 2390 B1 | 3392 A2 | 6317 B2 | |
| 2392 B1 | 3393 A2 | 6411 A4 | |
| 2393 B1 | 3402 A3 | 6412 B4 | |
| 2394 B1 | 3404 A4 | 6601 B4 | |
| 2401 A4 | 3405 A4 | 6602 B4 | |
| 2402 A4 | 3406 A4 | 6604 B3 | |
| 2403 A4 | 3407 A4 | 6605 B4 | |
| 2405 A4 | 3408 A4 | 6609 B3 | |
| 2406 A4 | 3409 A4 | 6610 B3 | |
| 2407 A4 | 3410 B4 | 6612 B3 | |
| 2408 A4 | 3411 A4 | 6613 B3 | |
| 2409 A4 | 3412 A4 | 6631 B3 | |
| 2411 A4 | 3413 A4 | 6632 B3 | |
| 2412 A4 | 3422 A3 | 7005 B1 | |
| 2413 A4 | 3423 A3 | 7011 B1 | |
| 2414 A4 | 3428 A4 | 7016 A1 | |
| 2415 A4 | 3429 A4 | 7017 A3 | |
| 2416 A4 | 3431 A3 | 7021 A4 | |
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| 2419 A4 | 3433 A3 | 7025 A4 | |
| 2426 A4 | 3435 A3 | 7026 A4 | |
| 2427 A4 | 3437 A4 | 7027 A4 | |
| 2428 A3 | 3438 A4 | 7030 A4 | |
| 2429 A3 | 3439 A4 | 7031 A3 | |
| 2433 B4 | 3441 A4 | 7035 A4 | |
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| 2437 A4 | 3443 A3 | 7037 A4 | |
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| 2601 B4 | 3447 A4 | 7052 B1 | |
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| 3068 A4 | 3481 A4 | 7415 A4 | |
| 3070 A4 | 3482 A4 | 7431 A3 | |
| 3071 A4 | 3602 B4 | 7451 A3 | |
| 3072 A4 | 3605 B4 | 7471 B3 | |
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| 3212 A1 | | | |

Conjunction Diagram



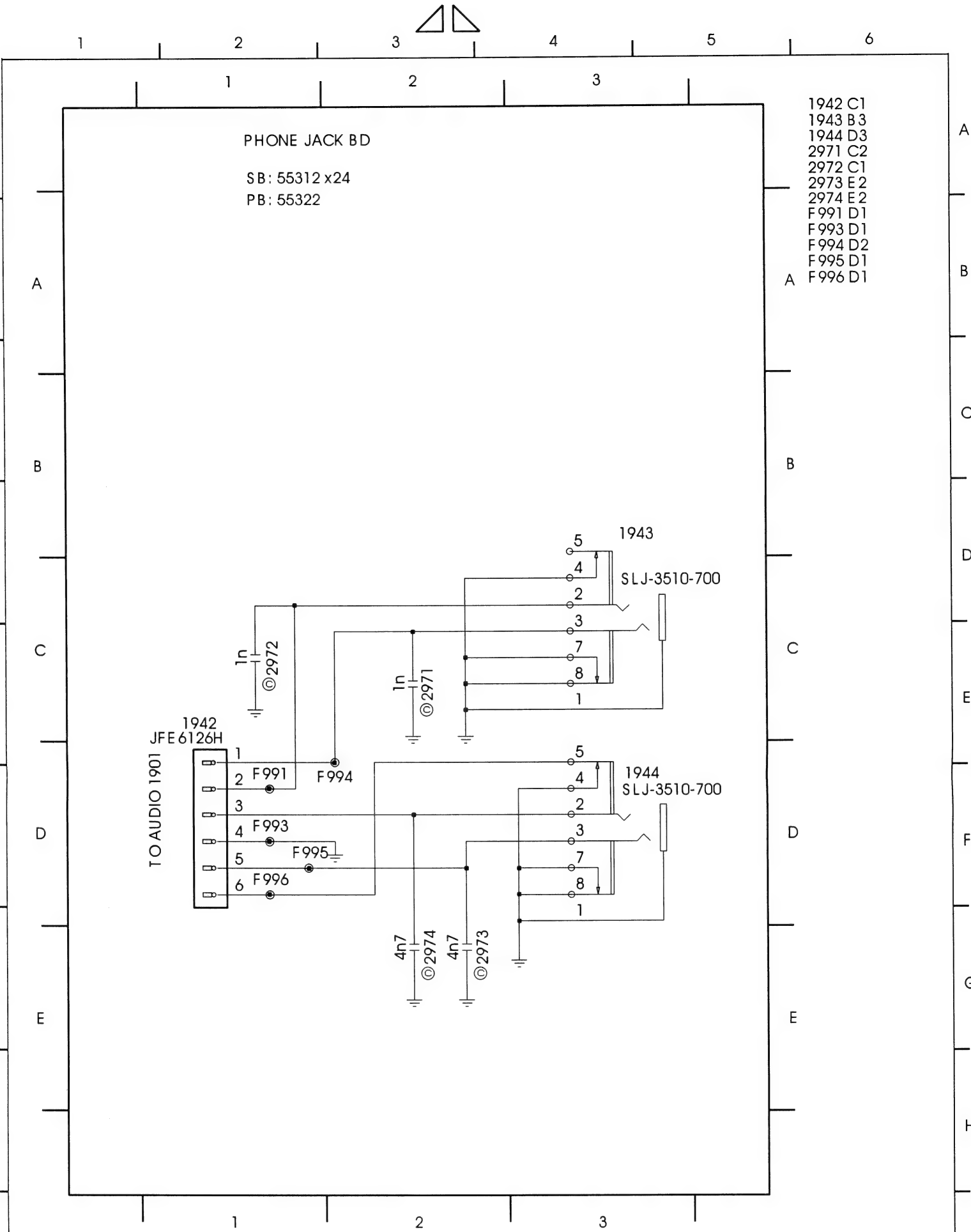
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| 1685 | A12 | B |
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| 1687 | A2 | B |
| 1688 | A4 | B |
| 1689 | A12 | B |
| 1681 | A9 | B |
| 1682 | A7 | B |
| 1683 | A5 | B |
| 1685 | A2 | B |
| 1686 | A11 | B |
| 1687 | A12 | B |
| 1688 | A10 | B |
| 1689 | A2 | B |
| 2681 | A2 | A |
| 2682 | A2 | A |
| 2683 | A3 | A |
| 2686 | A3 | A |
| 2687 | A2 | A |
| 2688 | A2 | A |
| 2689 | A12 | A |
| 2690 | A12 | A |
| 2691 | A10 | A |
| 2692 | A11 | A |
| 2693 | A11 | A |
| 2694 | A11 | A |
| 2695 | A1 | A |
| 2696 | A13 | A |
| 2697 | A12 | A |
| 2698 | A13 | A |
| 2699 | A13 | A |
| 3681 | A8 | A |
| 3682 | A8 | A |
| 3683 | A2 | A |
| 3684 | A2 | A |
| 3685 | A3 | A |
| 3686 | A3 | A |
| 3687 | A2 | A |
| 3688 | A2 | A |
| 3689 | A8 | A |
| 3690 | A3 | A |
| 3691 | A2 | A |
| 3692 | A2 | A |
| 3694 | A7 | A |
| 3695 | A12 | A |
| 3696 | A12 | A |
| 3697 | A12 | A |
| 3698 | A10 | A |
| 5681 | A4 | A |
| 5682 | A3 | A |
| 6681 | A1 | A |
| 6682 | A1 | A |
| 7681 | A4 | A |

Phone Jack PCB

- 1681 A5 B
- 1682 A7 B
- 1683 A9 B
- 1685 A12 B
- 1686 A3 B
- 1687 A2 B
- 1688 A4 B
- 1689 A12 B
- 1681 A9 B
- 1682 A7 B
- 1683 A5 B
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- 1687 A12 B
- 1688 A10 B
- 1689 A2 B
- 2681 A2 A
- 2682 A2 A
- 2683 A3 A
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- 2687 A2 A
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- 2692 A11 A
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- 2694 A11 A
- 2695 A1 A
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- 2697 A12 A
- 2698 A13 A
- 2699 A13 A
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- 3682 A8 A
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- 3684 A2 A
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- 3686 A3 A
- 3687 A2 A
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- 3691 A2 A
- 3692 A2 A
- 3694 A7 A
- 3695 A12 A
- 3696 A12 A
- 3697 A12 A
- 3698 A10 A
- 5681 A4 A
- 5682 A3 A
- 6681 A1 A
- 6682 A1 A
- 7681 A4 A

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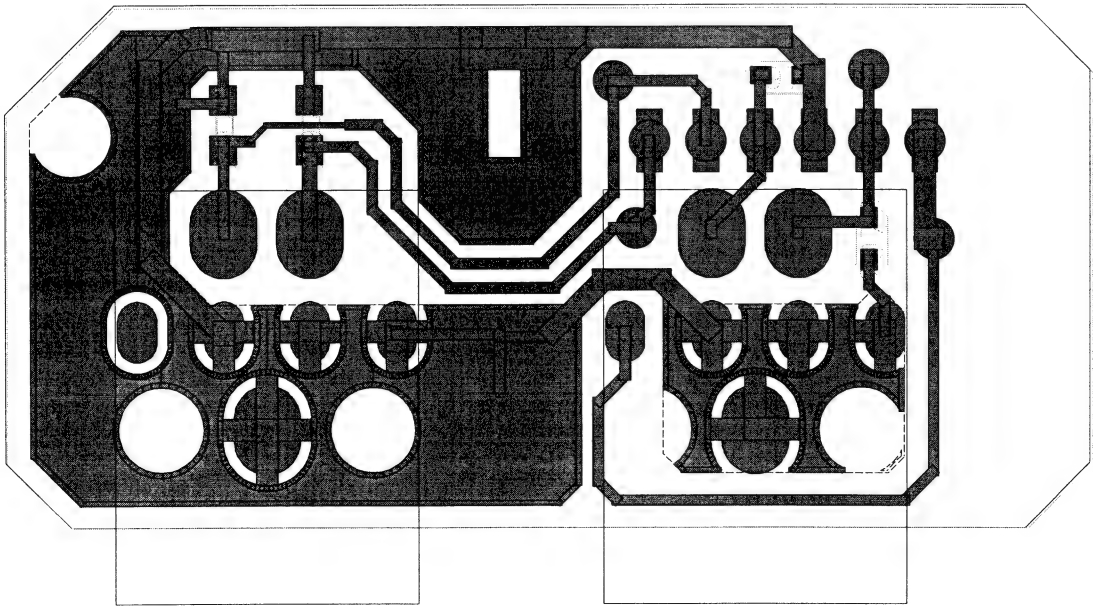
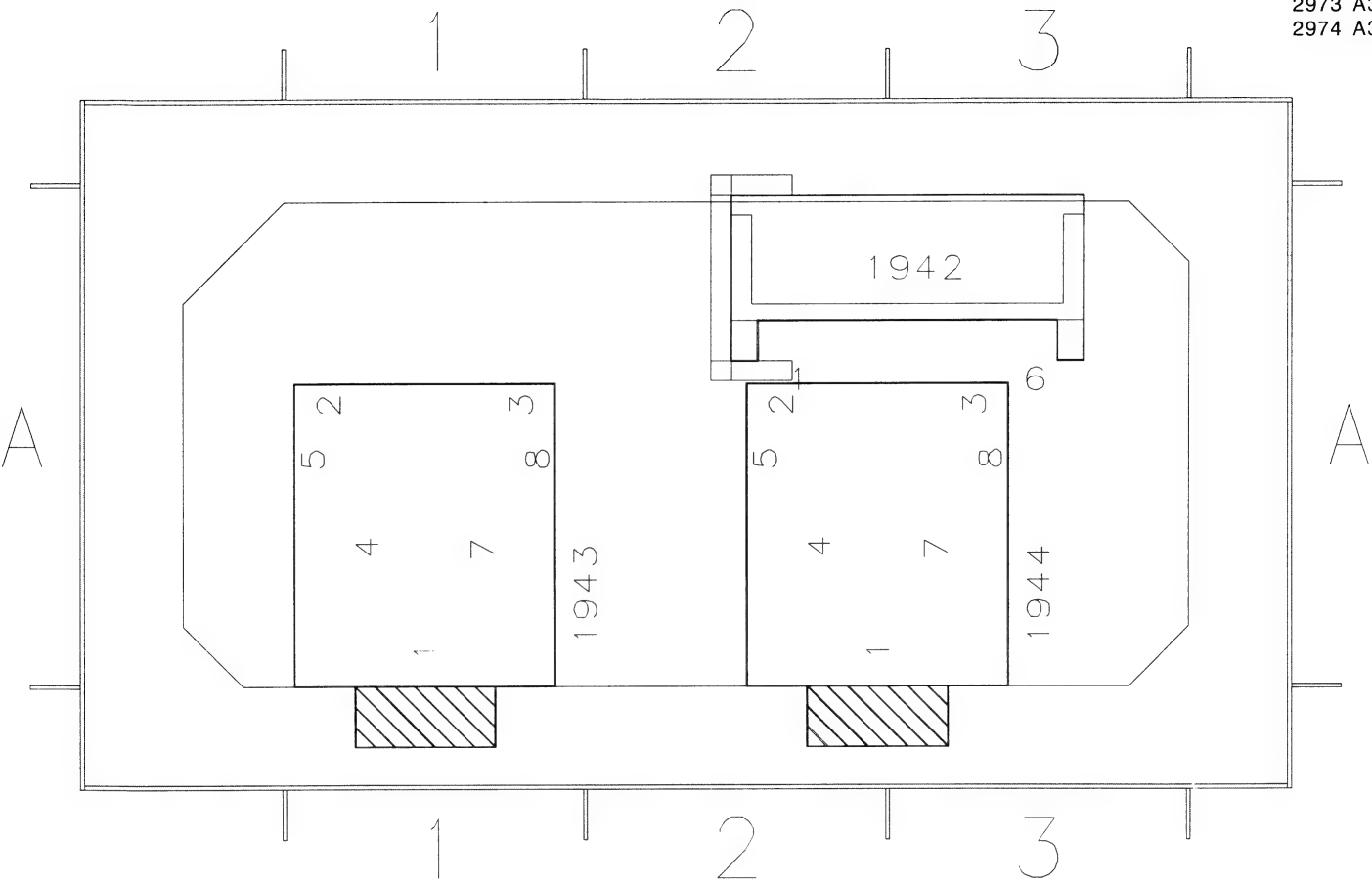


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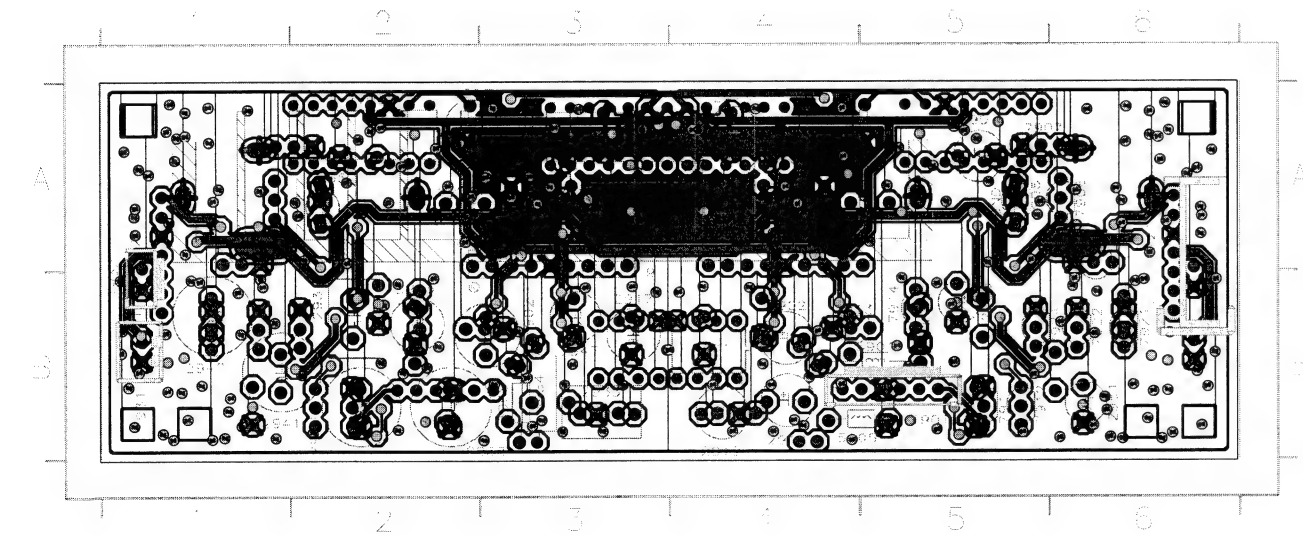
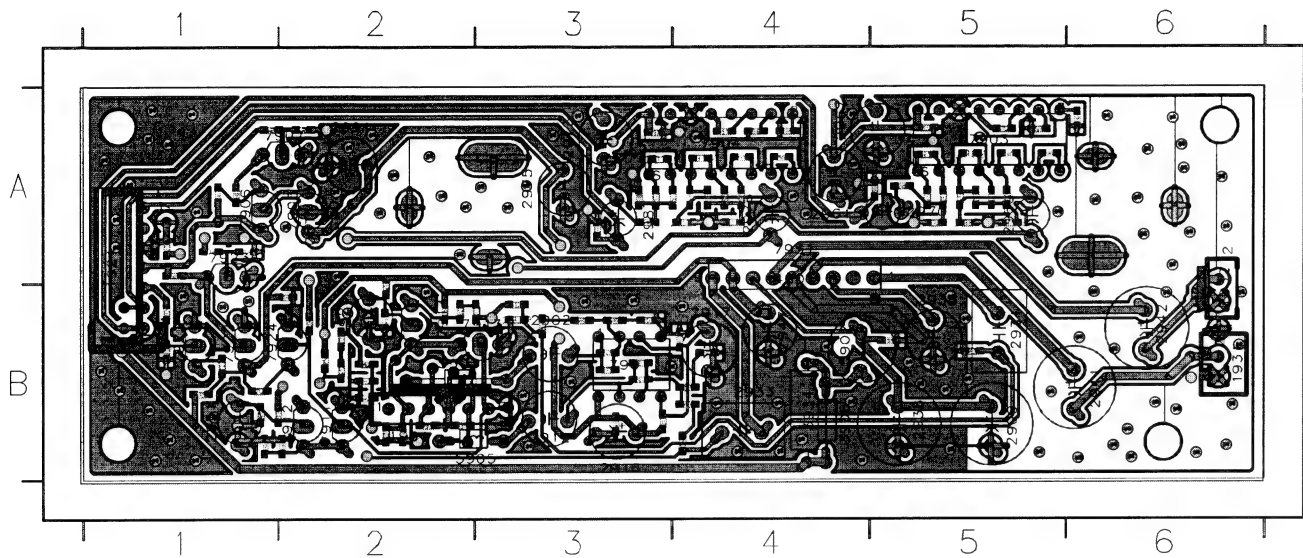
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| 02-04-30 | | 3 | | 10 130- 1 *** A4 | |
| NAME Y. Liu/J. Cheng | | SUPERS. | | 1 | |
| MGr CHECK ***** | | DATE 01-11-09 | | KONINKLIJKE PHILIPS ELECTRONICS N.V. 2000 | |

Phone Jack C.B.A

| | | |
|------|----|---|
| 1942 | A3 | B |
| 1943 | A1 | B |
| 1944 | A3 | B |
| 2971 | A1 | A |
| 2972 | A1 | A |
| 2973 | A3 | A |
| 2974 | A3 | A |



Sound Board (C.B.A)

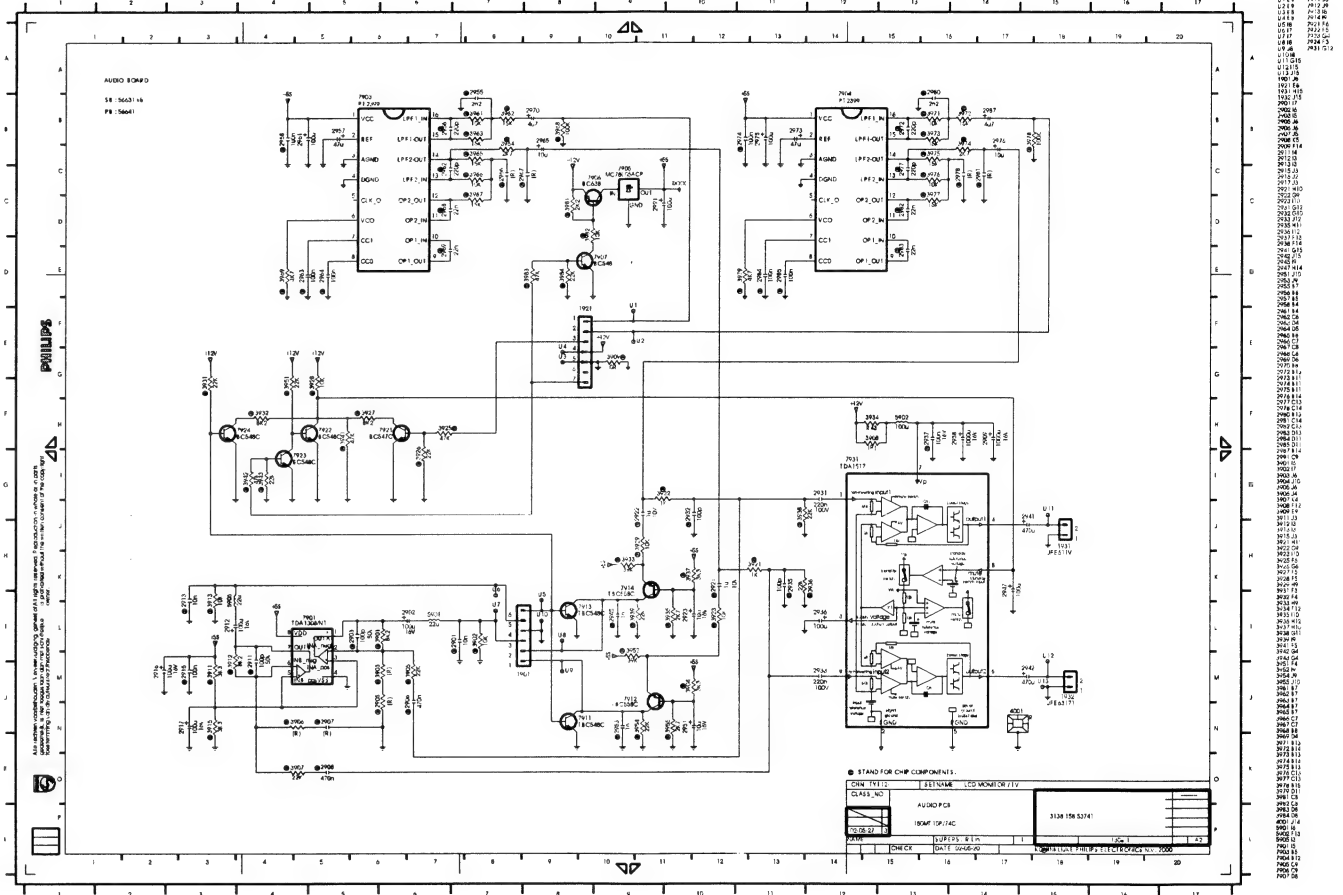


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2970 A5 B
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2976 A4 B
2987 A3 B
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3908 B4 B
3934 A4 B
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7923 A1 B
7924 B1 B
7931 A4 B

1901 B5 B
1921 A6 B
1931 B1 B
1932 B1 B
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7924 B6 B
7931 A3 B

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2907 B4 A
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2922 B3 A
2932 B3 A
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2963 A5 A
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2966 A5 A
2967 A5 A
2968 A5 A
2969 A5 A
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2974 A3 A
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Audio PCB

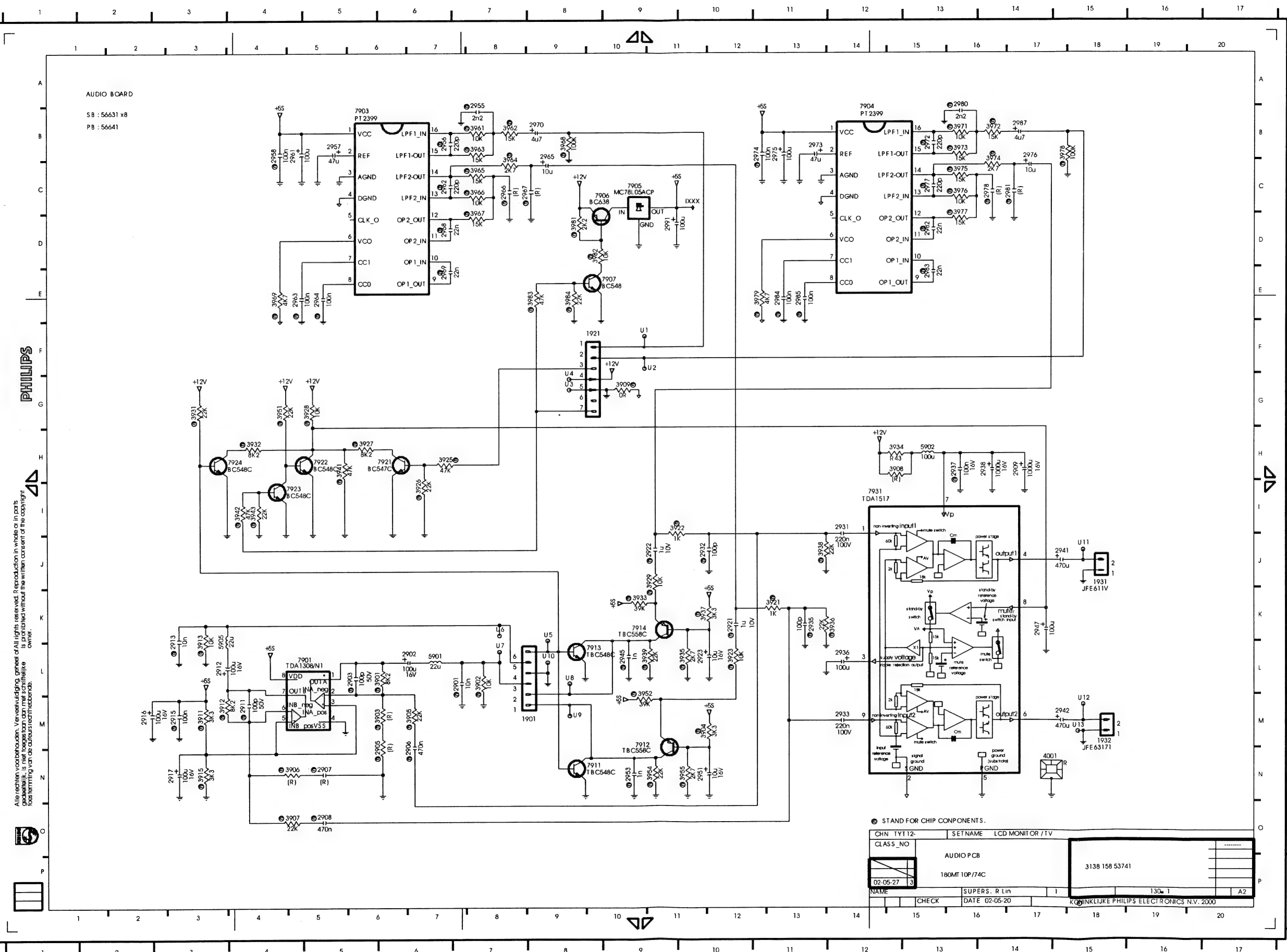


Audio PCB

180MT10P LMT

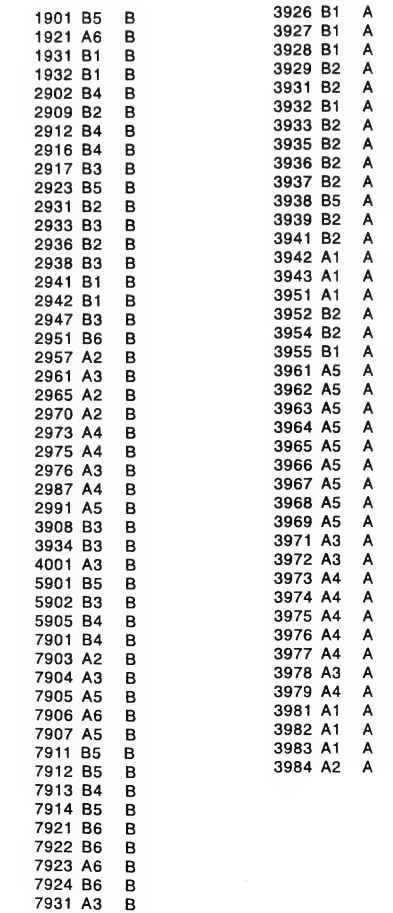
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Go to cover page



U2 E9 7911 J8
U2 E9 7912 J9
U3 E8 7913 I8
U3 E8 7914 I9
U5 I8 7921 F6
U6 I7 7922 F5
U7 I7 7923 G4
U8 I8 7924 F3
U9 J8 7931 G12
U10 I8
U11 G15
U12 I5
U13 J15
1901 J8
1921 F8
1931 H15
1932 I15
1951 J7
2002 I6
2003 I5
2006 J6
2007 J5
2015 F4
2011 I4
2012 I3
2013 I3
2015 J3
2016 J2
2017 J3
2021 H10
2022 G9
2023 I10
2031 G12
2032 G10
2033 J12
2035 H11
2036 I12
2037 F13
2038 F14
2041 G15
2042 I16
2045 I9
2047 H14
2051 J9
2053 J9
2055 B7
2056 B6
2057 B5
2058 B4
2061 B4
2062 G6
2063 D4
2064 D5
2065 B8
2066 C7
2067 C8
2068 C6
2069 C7
2070 B8
2072 B13
2073 B11
2074 B11
2075 B11
2076 B14
2077 B14
2078 C14
2080 B13
2081 C14
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2083 D13
2084 D11
2085 D11
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2094 J10
2095 J6
2096 J4
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2101 J3
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2173 B13
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2176 C13
2177 C13
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2183 D8
2184 D8
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5002 F13
5005 I5
5001 I5
7004 B12
7005 C9
7006 C9
7007 D8

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| 1931 B1 B | 3928 B1 A |
| 1932 B1 B | 3929 B2 A |
| 2902 B4 B | 3931 B2 A |
| 2909 B2 B | 3932 B1 A |
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| 2916 B4 B | 3935 B2 A |
| 2917 B3 B | 3936 B2 A |
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| 2942 B1 B | 3951 A1 A |
| 2947 B3 B | 3952 B2 A |
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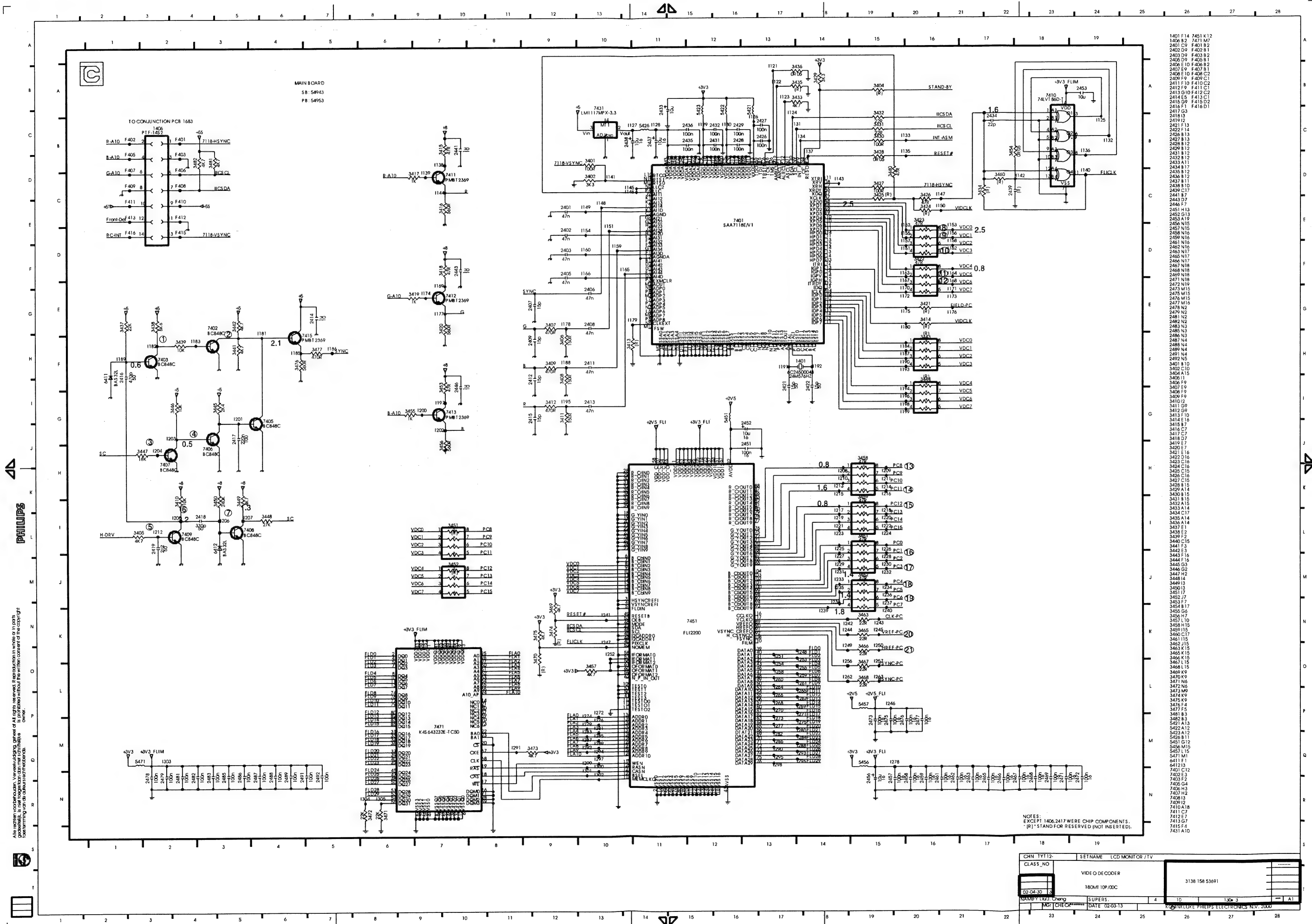
44



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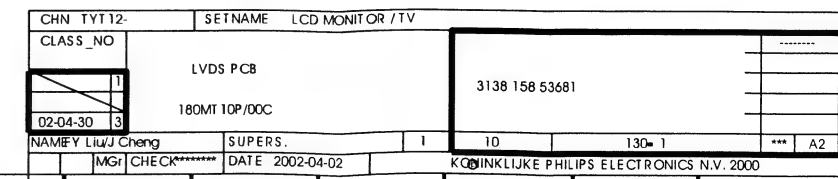
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| MOBILE Y | | SUPERVISOR | | 4 | | 10 | | 150-1 | |
| DATE 02-03-13 | | R0000000 PHILIPS ELECTRONICS N.V. 2000 | | | | | | A1 | |

Schematic Diagram (Video Decoder)

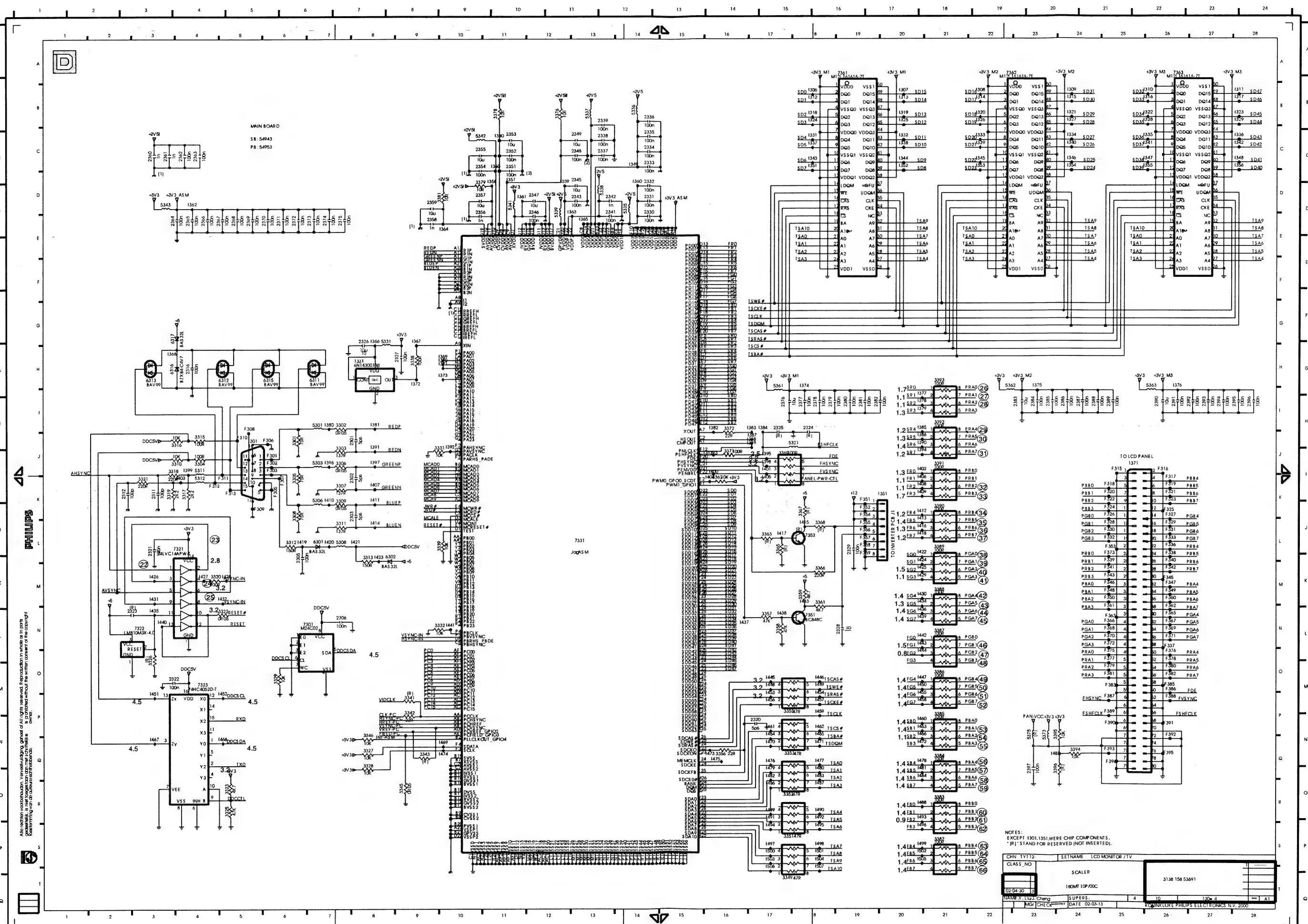


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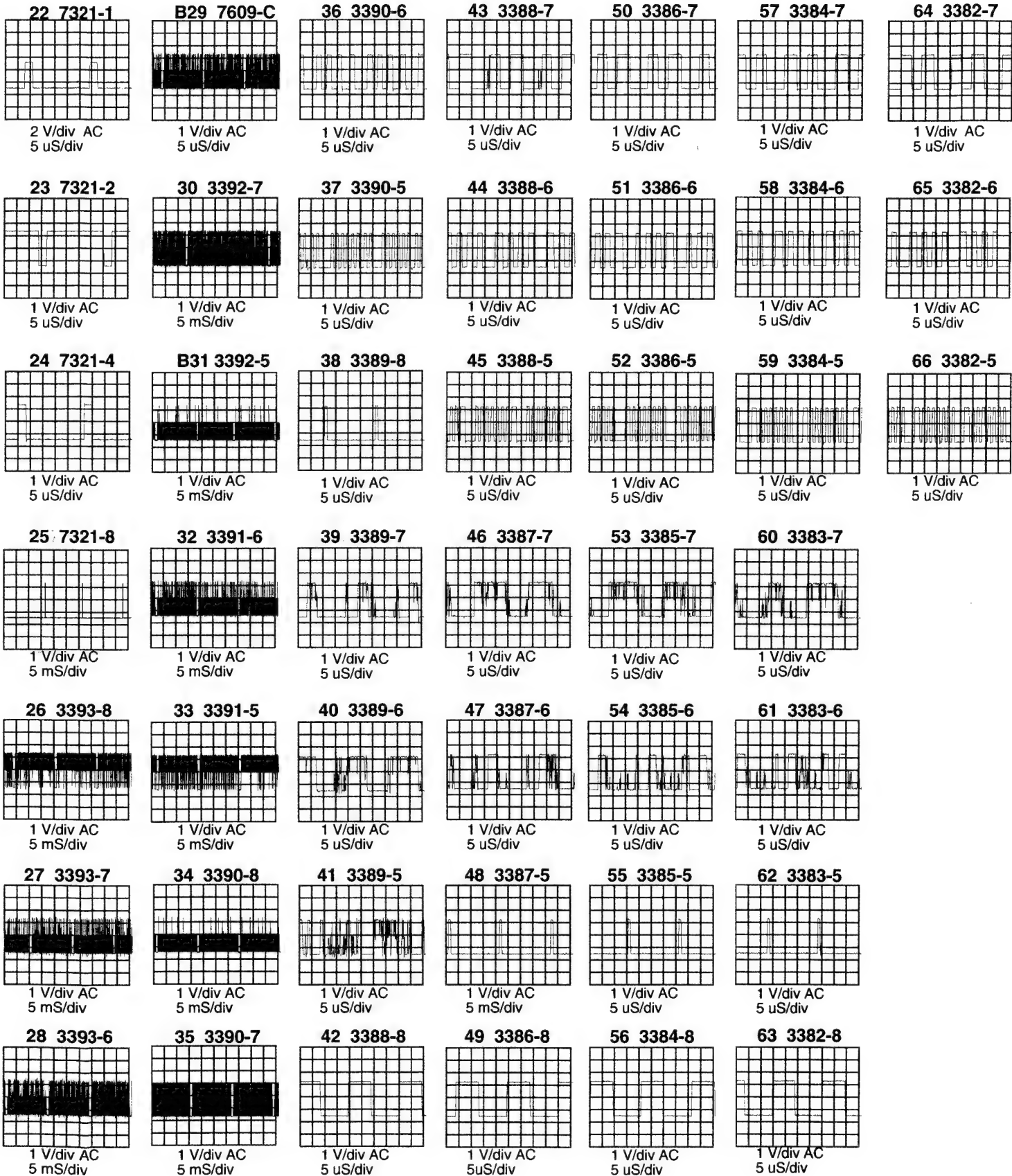
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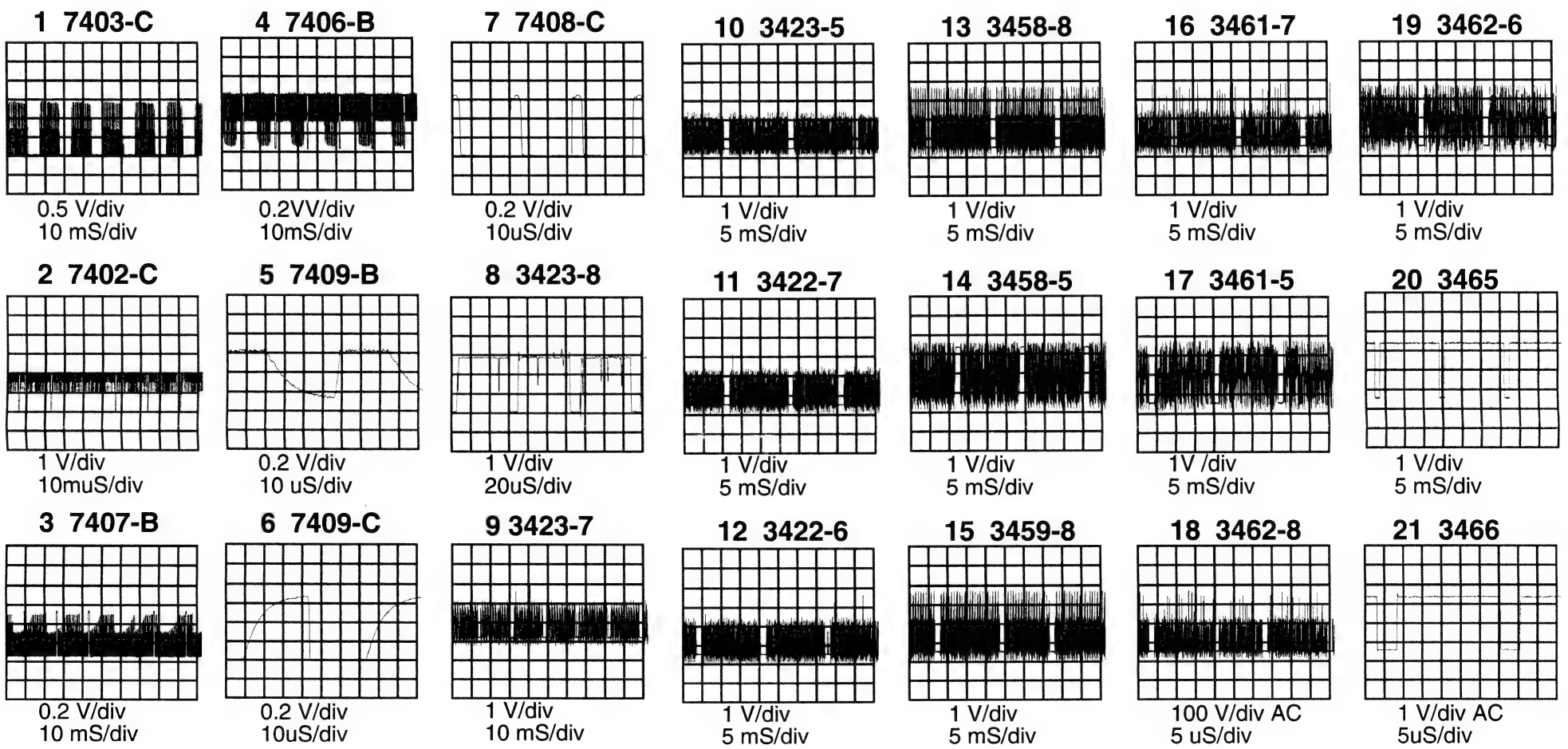
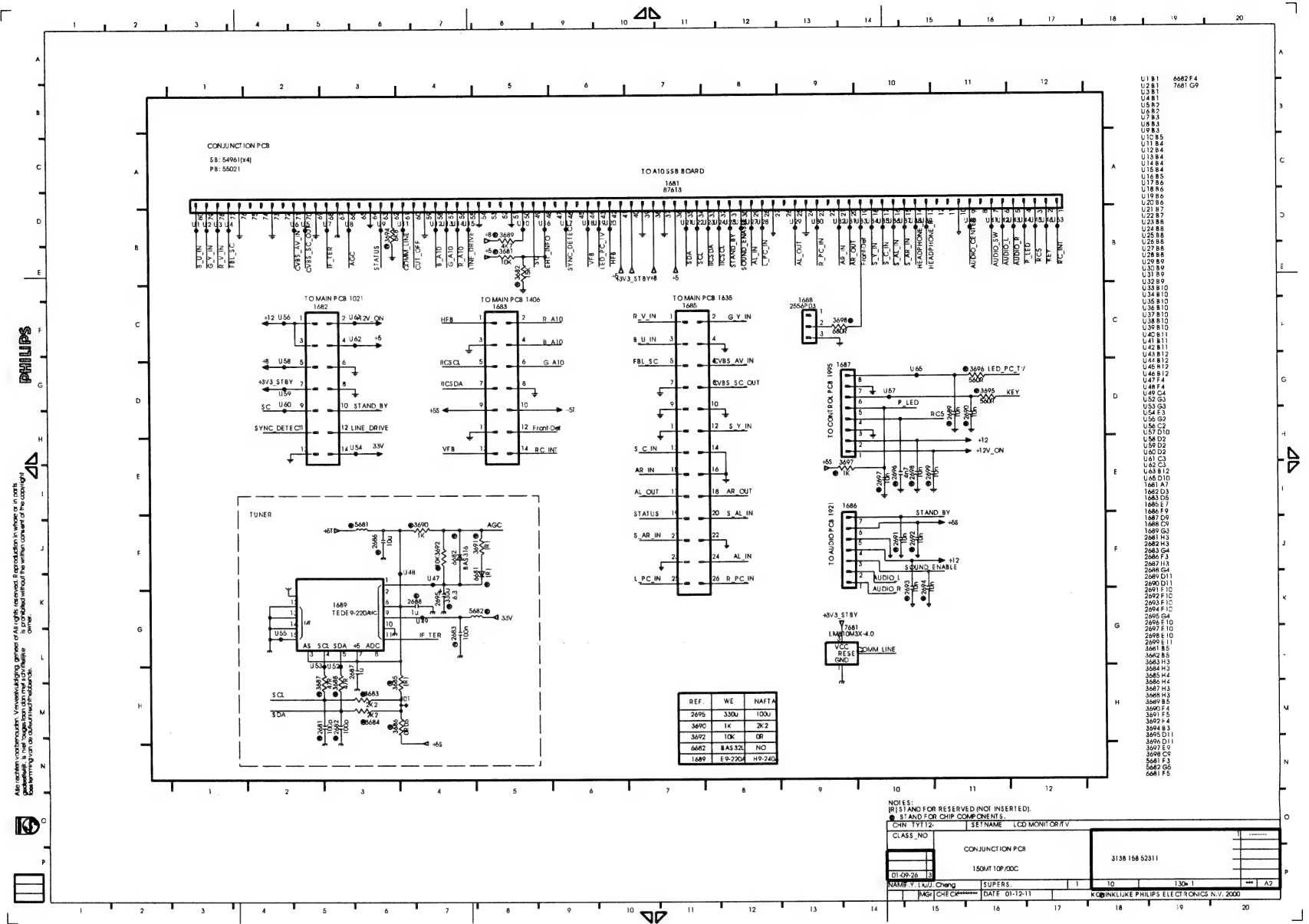
Schematic Diagram (Scaler)



Waveforms



Schematic Diagram (Conjunction PCB)



Schematic Diagram (Video I/O)

PHILIPS

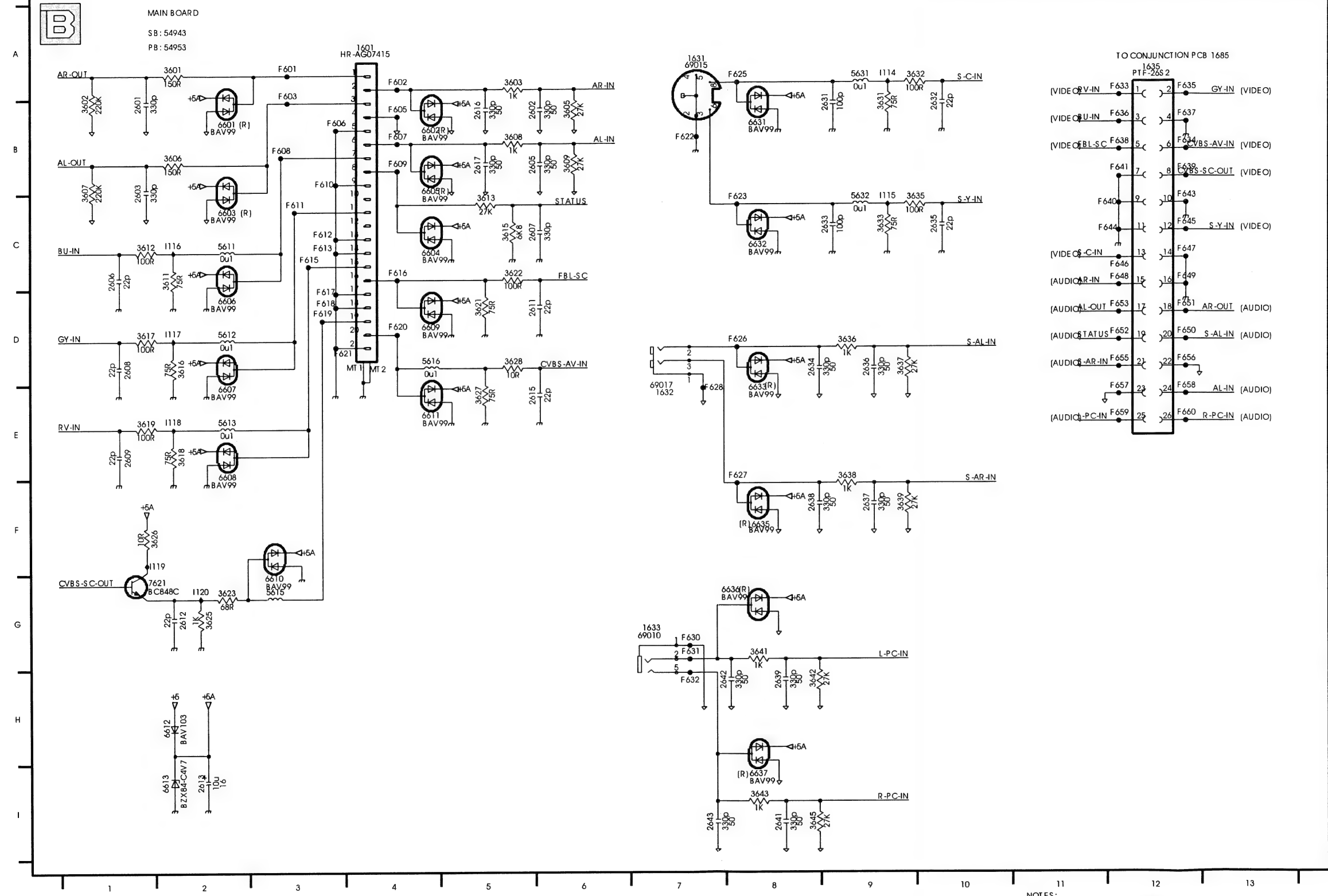


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A B C D E F G H I J K L M N O P

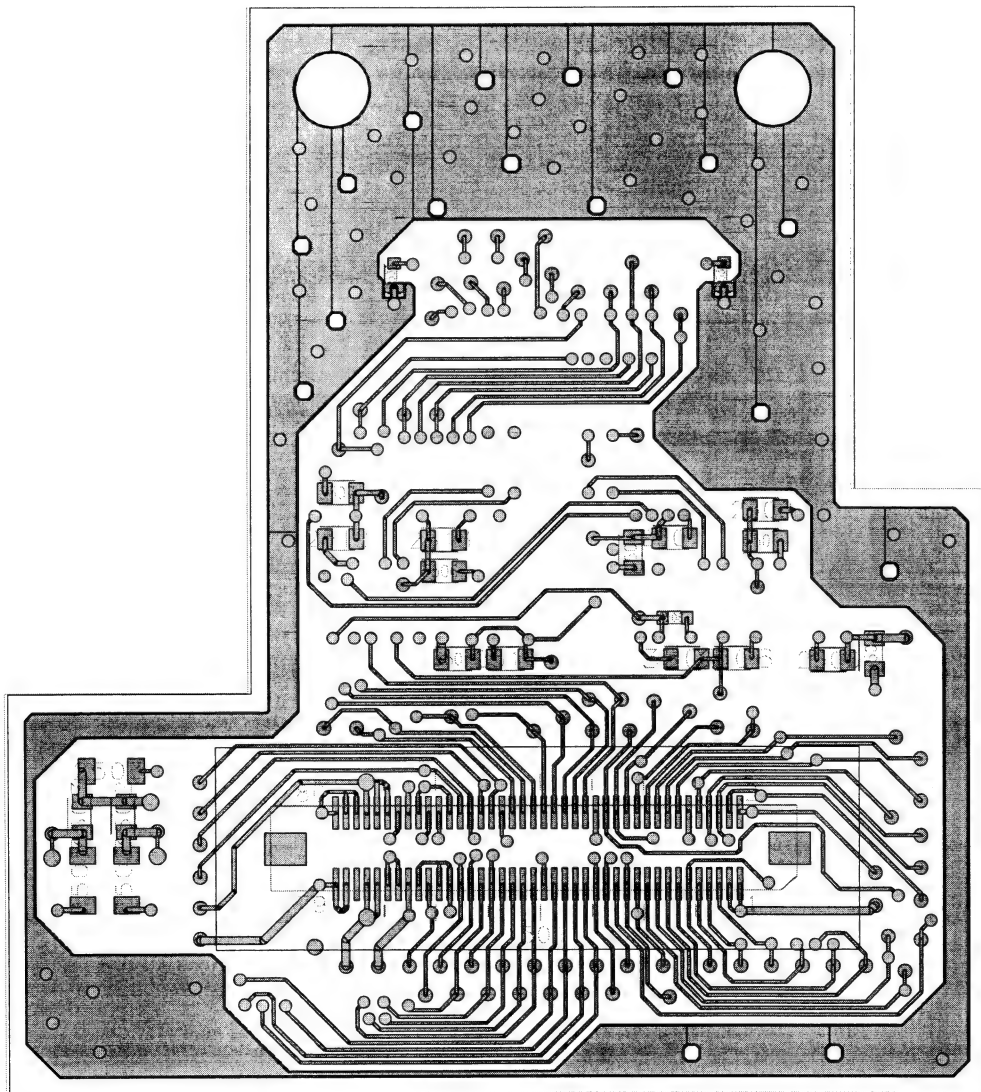


LVDS C.B.A.

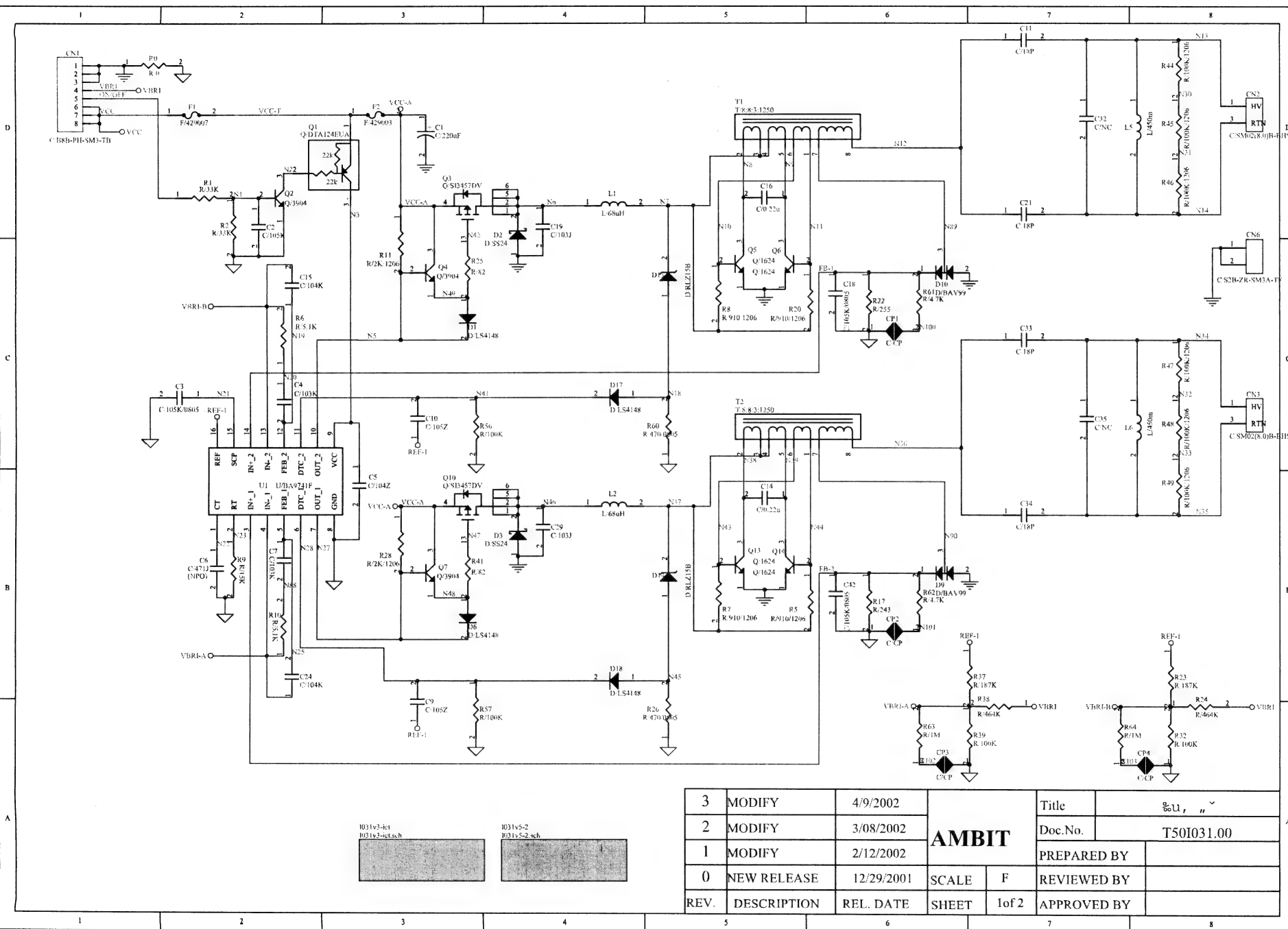
180MT10P LMT

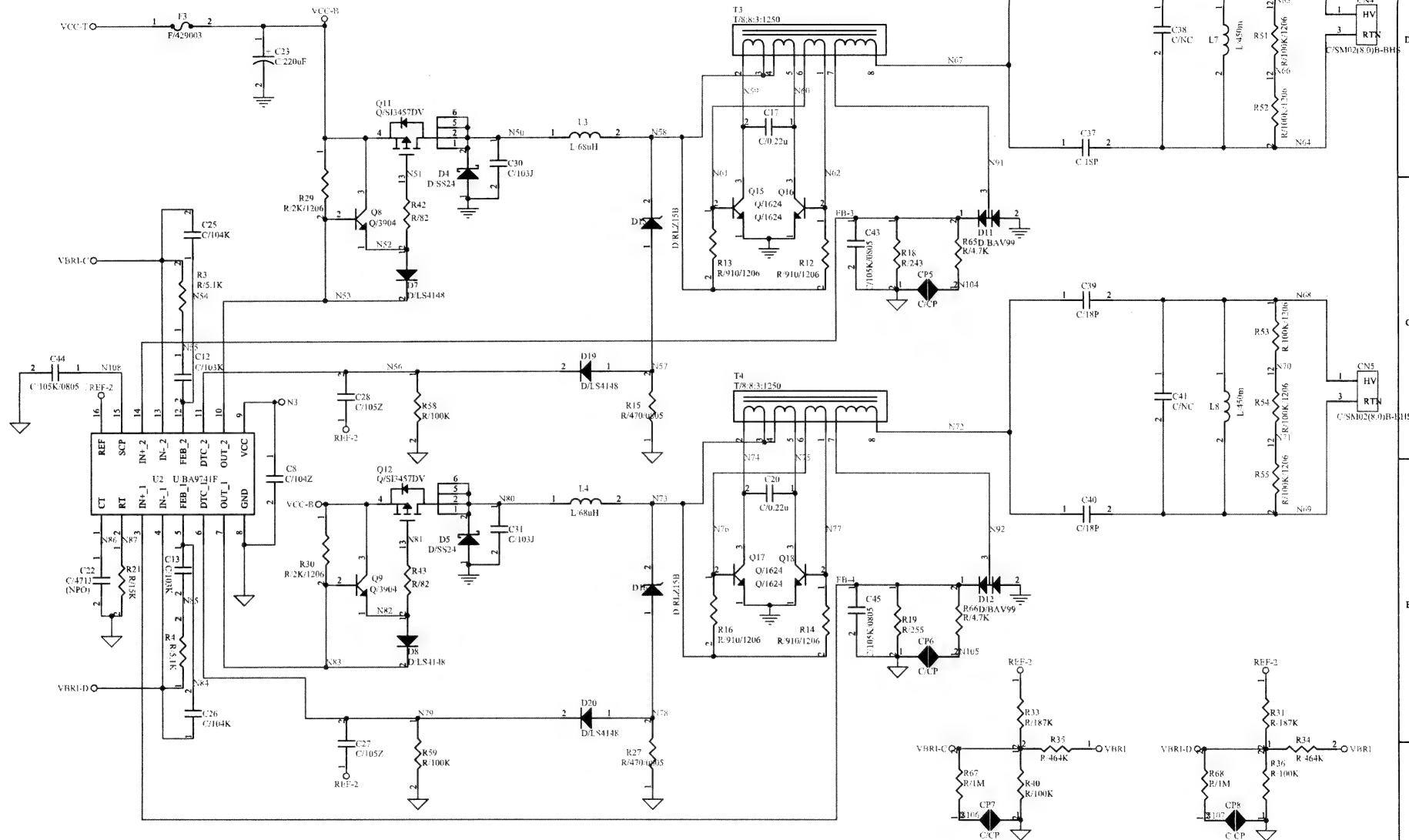
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Inverter Diagram





TRAY1
M-TRAY-218B

PCB BOARD
M-PCB BOARD

M-SOLDER1
SOLDER
M-SOLDER

LABEL1
LABEL
M-LABEL

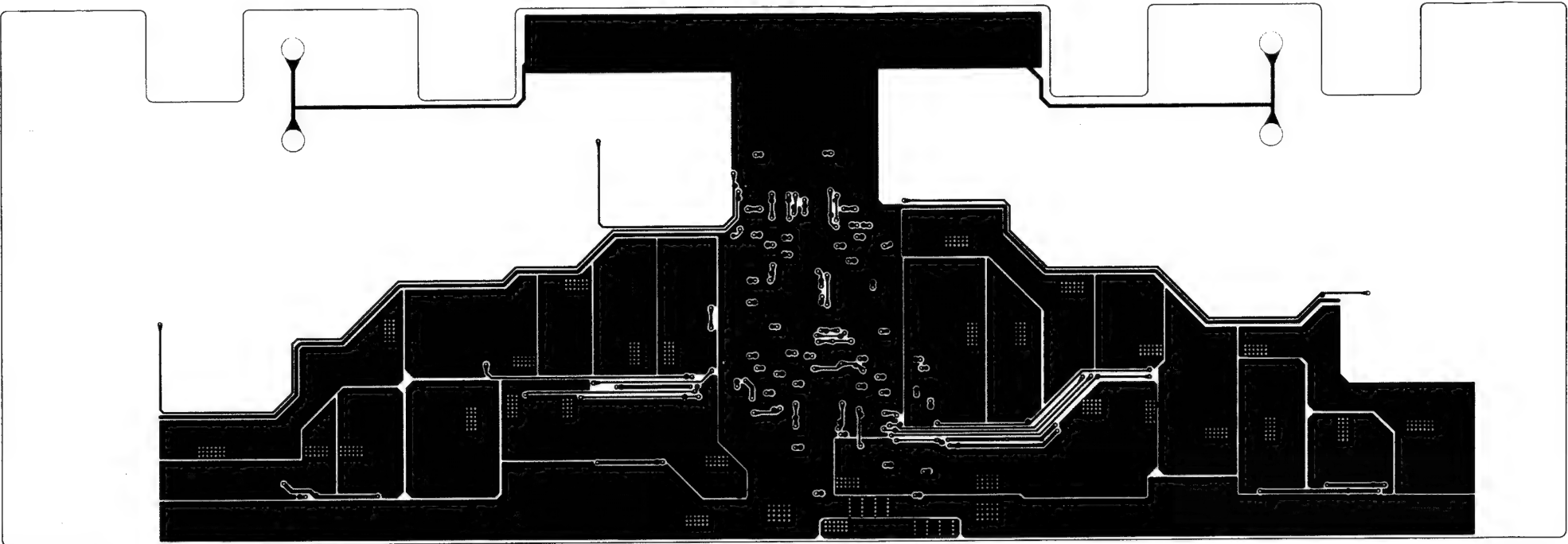
CARTON1
CARTON
M-CARTON

| | | | | | | |
|------|-------------|------------|-------|--------|-------------|--|
| 3 | MODIFY | 4/9/2002 | Title | | % | |
| 2 | MODIFY | 3/08/2002 | | | Doc.No. | |
| 1 | MODIFY | 2/12/2002 | | | T501031.00 | |
| 0 | NEW RELEASE | 12/29/2001 | SCALE | F | PREPARED BY | |
| REV. | DESCRIPTION | REL. DATE | SHEET | 2 of 2 | REVIEWED BY | |
| | | | | | APPROVED BY | |

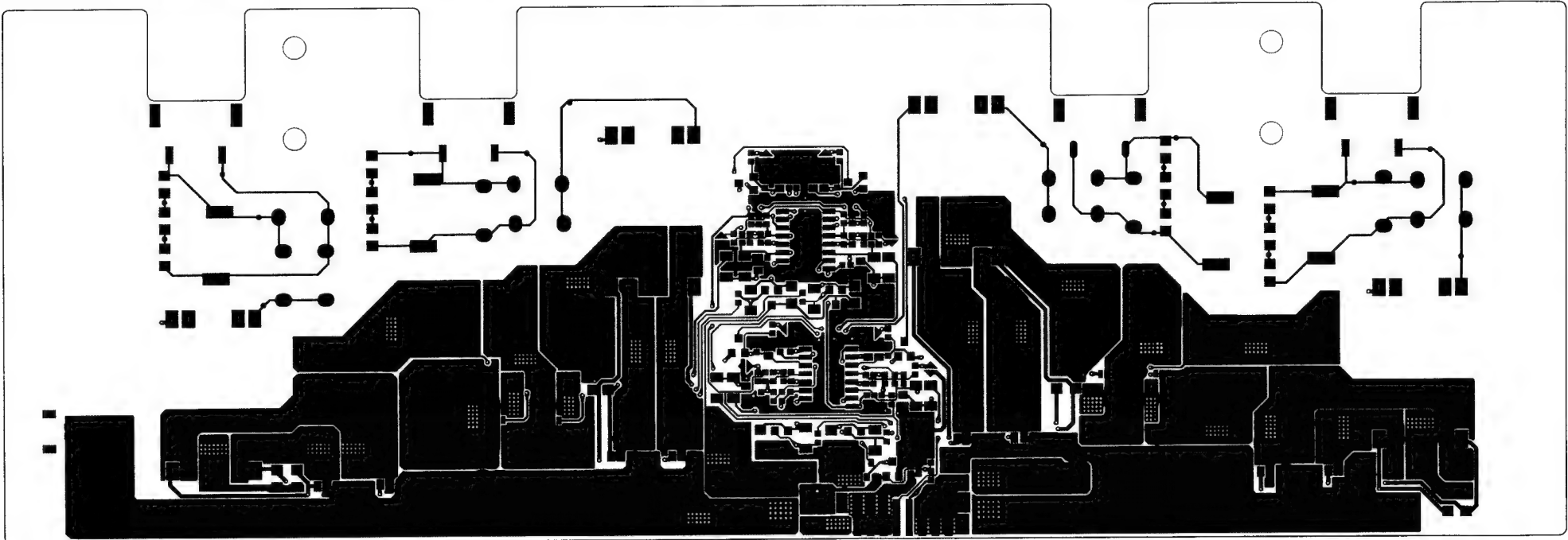
AMBIT

Inverter layout drawings

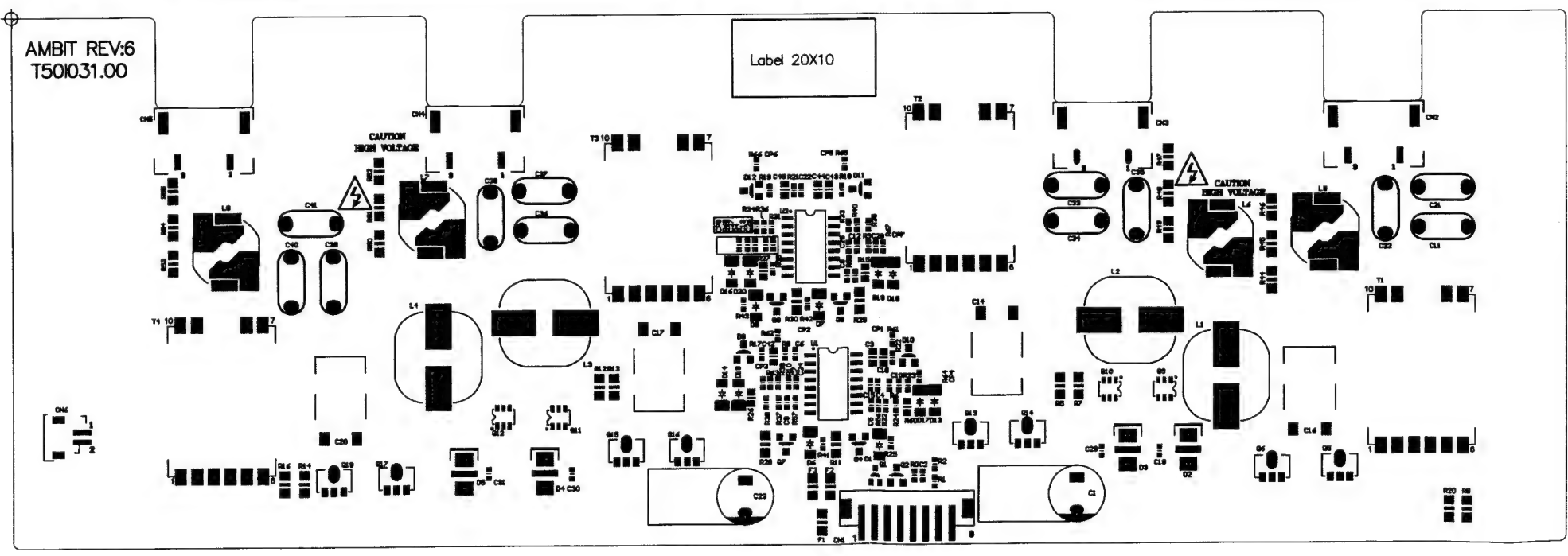
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Top layer



Top overlayer

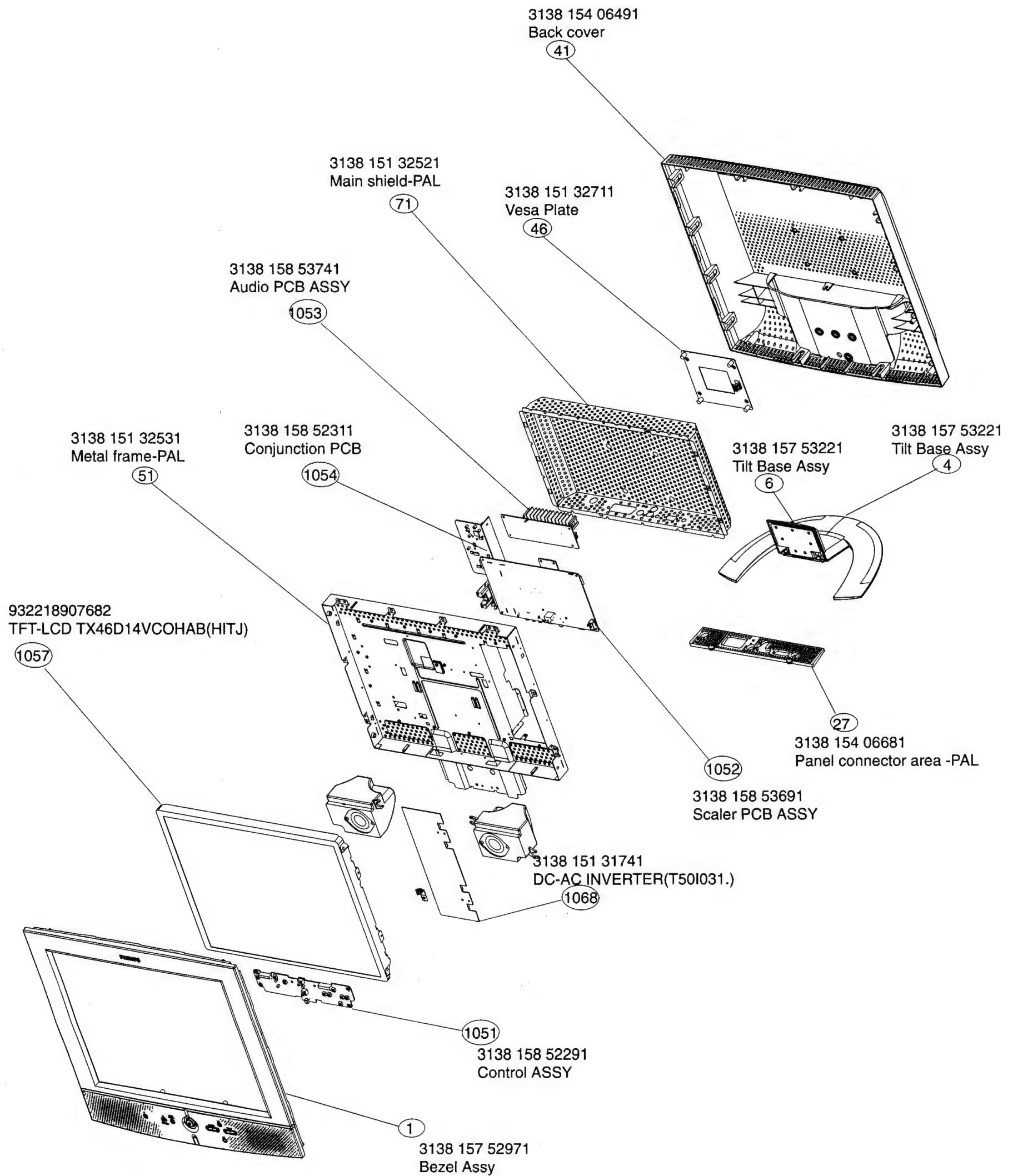


Exploded View

180MT10P LMT

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Recommended Parts List

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Model: 180MT10P/00C

| Item | Code Number | Description |
|------|--------------|---------------------------------|
| 1 | 313815752971 | BEZEL ASSY |
| 2 | 138157532981 | BACK COVER ASSY |
| 4 | 313815753221 | TILT BASE ASSY |
| 6 | 313815406671 | BASE COVER |
| 7 | 313815404151 | POWER KNOB |
| 30 | 313815555701 | PLASTIC COVER |
| 41 | 313815406491 | BACK COVER |
| 46 | 313815132711 | VESA PLATE |
| 61 | 313815160741 | BASE |
| 81 | 313815406471 | BEZEL |
| 82 | 313815406481 | DECORATION |
| 141 | 313815520882 | QUICK SETUP GUIDE |
| 450 | 313815632841 | CARTON |
| 451 | 313815632821 | EPE CUSHION-LEFT |
| 452 | 313815632831 | EPE CUSHION-RIGHT |
| 453 | 313815620801 | P.E.BAG-STAT. |
| 601 | 313811703663 | E-D.F.U. ASSY |
| 602 | 313811703673 | E-D.F.U |
| 1051 | 313815852291 | CONTROL PCB ASSY |
| 1052 | 313815853691 | SCALER PCB ASSY |
| 1053 | 313815853741 | AUDIO PCB ASSY |
| 1054 | 313815852311 | CONJUNCTION PCB ASSY |
| 1055 | 313815853721 | PHONE JACK PCB ASSY |
| 1056 | 313815853681 | LVDS PCB ASSY |
| 1057 | 932218907682 | TFT-LCD TX46D14VCOHAB(HITJ)B |
| 1060 | 313812874931 | MAINS CORD |
| 1062 | 313818872471 | CORD PHONE 1M5 PHONE M BLK |
| 1064 | 313816878511 | I/F CABLE |
| 1065 | 929900010137 | BAT ZNC 1.5V R6/AA |
| 1066 | 313922889481 | PRODUCT ASSY RC25107/PACKED |
| 1068 | 823827712031 | DC-AC INVERTER(T50I031.) |
| 1069 | 823827712041 | AC/DC ADAPTOR(SLS0111B12043) |
| | 313810610197 | ROM assy with program (7203) |
| | 313810610200 | EEPROM with program assy (7202) |
| 6994 | 932213169687 | IR RECEIVER TSOP1836SS3V |
| 7011 | 932211529668 | FET POW SM SI9433DY |
| 7201 | 935256600112 | IC SM P80C51RA+4A |
| 7202 | 932212662682 | IC M24C16-BN6 |
| 7331 | 932217970671 | IC SM JagASM |
| 7410 | 935209280118 | IC SM 74LVT86D |
| 7431 | 932216733668 | IC SMLD1117S33 |
| 7451 | 932216918671 | IC SM FLI22 |
| 7471 | 932217603668 | IC SM K4S643232E-TC50 |

823827712031 DC-AC INVERTER

| | | |
|-----|----------------|----------------------------------|
| C1 | 9965 000 14741 | CAP. AL SC025M0220CBT 220uF/25v |
| C16 | 9965 000 14767 | CAP. MPP R79GC3220ZA 0.22uF/160V |
| D2 | 9965 000 06330 | DIODE SBD S24 SMA(GW) |
| Q5 | 9965 000 14768 | TR NPN 2SD1624T-TD SOT89/SANYO |
| Q1 | 9965 000 05479 | TR DTA124EUA |
| Q10 | 9965 000 05480 | FET <1W SI3457DV/TSOP6 |
| U1 | 9965 000 06332 | IC BA9741F SOP16(ROHM) |
| Q9 | 9965 000 08855 | TR NPN MMBT3904LT1SOT23(MOTO) |
| T1 | 9965 000 14769 | XFMR SIT08133-15A V:01(TMP) |
| F1 | 9965 000 12325 | FUSE 429007 7A(LITTEL) |

Spare Parts List

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| | | | | | | | | | | | |
|------|--------------|-------------------|------------|------|--------------|------------------|--------------------|------|--------------|------------------------|--------------|
| 2451 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2923 | 203803513202 | ELCAP RGA | 16V S 10U PM20 A | 3071 | 319802132230 | RST SM 0603 | 22K PM5 COL |
| 2452 | 202002191725 | ELCAP SM RVS 16V | 10U PM20 | 2931 | 222236525224 | CAP MPOL | 1VS 220N PM10 A | 3072 | 319802134730 | RST SM 0603 | 47K PM5 COL |
| 2453 | 222224119876 | CER2 1206 Y5V 10V | 10U P8020R | 2932 | 223886715101 | CER1 0603 NP050V | 1P PM5 R | 3073 | 319802131030 | RST SM 0603 | 10K PM5 COL |
| 2456 | 202002191725 | ELCAP SM RVS 16V | 10U PM20 | 2933 | 222236525224 | CAP MPOL | 1VS 220N PM10 A | 3075 | 319802133330 | RST SM 0603 | 33K PM5 COL |
| 2457 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2936 | 203803513201 | ELCAP RGA | 16V S 1U PM20A | 3201 | 319802134720 | RST SM 0603 | 47K PM5 COL |
| 2458 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2937 | 223878615649 | CER2 0603 X7R16V | 1N PM10 R | 3202 | 319802134720 | RST SM 0603 | 47K PM5 COL |
| 2459 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2938 | 203803350019 | ELCAP VZ | 16VS 10U PM20 A | 3203 | 319802190030 | RST SM 0603JUMP. | 0R05 COL |
| 2461 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2941 | 203803527205 | ELCAP KM | 16VS 470U PM20 A | 3206 | 319802131030 | RST SM 0603 | 10K PM5 COL |
| 2462 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2942 | 203803527205 | ELCAP KM | 16VS 470U PM20 A | 3211 | 235003510472 | RST NETW SMARV24 4X | 4K7PM5 |
| 2463 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2945 | 223858615623 | CER2 0603 X7R50V | 1N PM10R | 3212 | 235003510472 | RST NETW SMARV24 4X | 4K7PM5 |
| 2465 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2947 | 203803500038 | ELCAP SM | 16VS 1U PM20 A | 3213 | 319802135610 | RST SM 0603 | 560R PM5 COL |
| 2466 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2951 | 203803513202 | ELCAP RGA | 16V S 10U PM20 A | 3215 | 319802135610 | RST SM 0603 | 560R PM5 COL |
| 2467 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2953 | 223858615623 | CER2 0603 X7R50V | 1N PM10R | 3216 | 319802135610 | RST SM 0603 | 560R PM5 COL |
| 2468 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2955 | 223858615627 | CER2 0603 X7R50V | 2N2 PM10R | 3217 | 319802135610 | RST SM 0603 | 560R PM5 COL |
| 2469 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2956 | 223886715221 | CER1 0603 NP050V | 220P PM5 R | 3218 | 319802135610 | RST SM 0603 | 560R PM5 COL |
| 2471 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2957 | 203803500037 | ELCAP SM | 16VS 47U PM20 A | 3219 | 319802135610 | RST SM 0603 | 560R PM5 COL |
| 2472 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2958 | 223878615649 | CER2 0603 X7R16V | 1N PM10 R | 3220 | 319802135610 | RST SM 0603 | 560R PM5 COL |
| 2473 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2961 | 203803500038 | ELCAP SM | 16VS 1U PM20 A | 3301 | 319802137590 | RST SM 0603 | 75R PM5 COL |
| 2475 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2962 | 223886715221 | CER1 0603 NP050V | 220P PM5 R | 3302 | 319802190030 | RST SM 0603JUMP. | 0R05 COL |
| 2476 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2963 | 223878615649 | CER2 0603 X7R16V | 1N PM10 R | 3303 | 212211806104 | RST SM 0603RC0603 137R | PM1 |
| 2477 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2964 | 223878615649 | CER2 0603 X7R16V | 1N PM10 R | 3304 | 319802131010 | RST SM 0603 | 1R PM5 COL |
| 2478 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2965 | 203801700339 | ELCAP | 16V S 10U P50M10 R | 3305 | 319802137590 | RST SM 0603 | 75R PM5 COL |
| 2479 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2966 | 223891615641 | CER2 0603 X7R25V | 22N PM10R | 3306 | 319802190030 | RST SM 0603JUMP. | 0R05 COL |
| 2481 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2969 | 223891615641 | CER2 0603 X7R25V | 22N PM10R | 3307 | 212211806104 | RST SM 0603RC0603 137R | PM1 |
| 2482 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2970 | 203801750406 | ELCAP SM | 16VS 4U7 PM20 B | 3308 | 319802137590 | RST SM 0603 | 75R PM5 COL |
| 2483 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2971 | 223891615649 | CER1 0603 NP025V | 1N PM5 R | 3309 | 319802190030 | RST SM 0603JUMP. | 0R05 COL |
| 2484 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2972 | 223886715221 | CER1 0603 NP050V | 220P PM5 R | 3310 | 319802131030 | RST SM 0603 | 10K PM5 COL |
| 2485 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2973 | 223891615649 | CER1 0603 NP025V | 1N PM5 R | 3311 | 212211806104 | RST SM 0603RC0603 137R | PM1 |
| 2486 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2974 | 203803500037 | ELCAP SM | 16VS 47U PM20 A | 3312 | 319802131510 | RST SM 0603 | 150R PM5 COL |
| 2487 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2975 | 223858615632 | CER2 0603 X7R50V | 4N7 PM10R | 3313 | 319802131510 | RST SM 0603 | 150R PM5 COL |
| 2488 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2976 | 223878615649 | CER2 0603 X7R16V | 1N PM10 R | 3315 | 319802131010 | RST SM 0603 | 1R PM5 COL |
| 2489 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2977 | 223858615632 | CER2 0603 X7R50V | 4N7 PM10R | 3316 | 319802131030 | RST SM 0603 | 10K PM5 COL |
| 2491 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2978 | 203803500038 | ELCAP SM | 16VS 1U PM20 A | 3317 | 319802132220 | RST SM 0603 | 2K2 PM5 COL |
| 2492 | 223878615649 | CER2 0603 X7R 16V | 1N PM10 R | 2979 | 203801700339 | ELCAP | 16V S 10U P50M10 R | 3318 | 319802132210 | RST SM 0603 | 220R PM5 COL |
| 2502 | 222224119876 | CER2 1206 Y5V 10V | 10U P8020R | 2980 | 223858615627 | CER2 0603 X7R50V | 2N2 PM10R | 3319 | 319802132220 | RST SM 0603 | 2K2 PM5 COL |
| 2503 | 222224119876 | CER2 1206 Y5V 10V | 10U P8020R | 2982 | 223891615641 | CER2 0603 X7R25V | 22N PM10R | 3320 | 319802131010 | RST SM 0603 | 1R PM5 COL |
| 2505 | 222224119876 | CER2 1206 Y5V 10V | 10U P8020R | 2983 | 223891615641 | CER2 0603 X7R25V | 22N PM10R | 3321 | 319802132210 | RST SM 0603 | 220R PM5 COL |
| 2506 | 222291028854 | CER2 0805 Y5V 25V | 220N P8020 | 2984 | 223878615649 | CER2 0603 X7R16V | 1N PM10 R | 3322 | 319802190030 | RST SM 0603JUMP. | 0R05 COL |
| 2507 | 222291028854 | CER2 0805 Y5V 25V | 220N P8020 | 2985 | 223878615649 | CER2 0603 X7R16V | 1N PM10 R | 3323 | 319802134730 | RST SM 0603 | 47K PM5 COL |
| 2508 | 222291028854 | CER2 0805 Y5V 25V | 220N P8020 | 2987 | 203801750406 | ELCAP SM | 16VS 4U7 PM20 B | 3325 | 319802134730 | RST SM 0603 | 47K PM5 COL |
| 2511 | 222291028854 | CER2 0805 Y5V 25V | 220N P8020 | 2991 | 202202000658 | ELCAP SS | 16VS 10U PM20 A | 3327 | 319802131030 | RST SM 0603 | 10K PM5 COL |
| 2512 | 222291028854 | CER2 0805 Y5V 25V | 220N P8020 | 2991 | 202202000658 | ELCAP SS | 16VS 10U PM20 A | 3328 | 319802131030 | RST SM 0603 | 10K PM5 COL |
| 2513 | 222291028854 | CER2 0805 Y5V 25V | 220N P8020 | 2991 | 203803500038 | ELCAP SM | 16VS 1U PM20 A | 3329 | 319802131030 | RST SM 0603 | 10K PM5 COL |
| 2601 | 223886715331 | CER1 0603 NP0 50V | 330P PM5 R | 3009 | 319802134720 | RST SM 0603 | 4K7 PM5 COL | 3331 | 319802131030 | RST SM 0603 | 10K PM5 COL |
| 2602 | 223886715331 | CER1 0603 NP0 50V | 330P PM5 R | 3010 | 319802134730 | RST SM 0603 | 47K PM5 COL | 3332 | 319802131030 | RST SM 0603 | 10K PM5 COL |
| 2603 | 223886715331 | CER1 0603 NP0 50V | 330P PM5 R | 3011 | 319802131030 | RST SM 0603 | 10K PM5 COL | 3338 | 319802131010 | RST SM 0603 | 1R PM5 COL |
| 2605 | 223886715331 | CER1 0603 NP0 50V | 330P PM5 R | 3012 | 319802131030 | RST SM 0603 | 10K PM5 COL | 3339 | 319802131030 | RST SM 0603 | 10K PM5 COL |
| 2606 | 223886715229 | CER1 0603 NP0 50V | 22P PM5 R | 3013 | 319802134730 | RST SM 0603 | 47K PM5 COL | 3342 | 319802132290 | RST SM 0603 | 22R PM5 COL |
| 2607 | 223886715331 | CER1 0603 NP0 50V | 330P PM5 R | 3015 | 319802132230 | RST SM 0603 | 22K PM5 COL | 3345 | 319802190030 | RST SM 0603JUMP. | 0R05 COL |
| 2608 | 223886715229 | CER1 0603 NP0 50V | 22P PM5 R | 3017 | 319802134730 | RST SM 0603 | 47K PM5 COL | 3346 | 319802131030 | RST SM 0603 | 10K PM5 COL |
| 2609 | 223886715229 | CER1 0603 NP0 50V | 22P PM5 R | 3018 | 319802190030 | RST SM 0603JUMP. | 0R05 COL | 3349 | 235003510479 | RST NETW SMARV24 4X | 47RPM5 |
| 2612 | 223886715229 | CER1 0603 NP0 50V | 22P PM5 R | 3019 | 319802132230 | RST SM 0603 | 22K PM5 COL | 3351 | 235003510479 | RST NETW SMARV24 4X | 47RPM5 |
| 2613 | 202001293721 | ELCAP SM RV2 16V | 10U PM20 | 3020 | 319802132210 | RST SM 0603 | 220R PM5 COL | 3352 | 235003510479 | RST NETW SMARV24 4X | 47RPM5 |
| 2615 | 223886715229 | CER1 0603 NP0 50V | 22P PM5 R | 3021 | 319802134710 | RST SM 0603 | 470R PM5 COL | 3353 | 235003510479 | RST NETW SMARV24 4X | 47RPM5 |
| 2616 | 223886715331 | CER1 0603 NP0 50V | 330P PM5 R | 3022 | 319802132230 | RST SM 0603 | 22K PM5 COL | 3355 | 235003510479 | RST NETW SMARV24 4X | 47RPM5 |
| 2617 | 223886715331 | CER1 0603 NP0 50V | 330P PM5 R | 3023 | 212010592155 | RST MOX 2W | RSS S 1R PM5 B | 3356 | 319802132290 | RST SM 0603 | 22R PM5 COL |
| 2631 | 223886715101 | CER1 0603 NP0 50V | 1P PM5 R | 3024 | 319802131220 | RST SM 0603 | 1K2 PM5 COL | 3357 | 319802134730 | RST SM 0603 | 47K PM5 COL |
| 2632 | 223886715229 | CER1 0603 NP0 50V | 22P PM5 R | 3025 | 319802154710 | RST SM 0805 | 470R PM5 COL | 3358 | 319802134730 | RST SM 0603 | 47K PM5 COL |
| 2633 | 223886715101 | CER1 0603 NP0 50V | 1P PM5 R | 3026 | 319802154710 | RST SM 0805 | 470R PM5 COL | 3359 | 319802134720 | RST SM 0603 | 47K PM5 COL |
| 2634 | 223886715331 | CER1 0603 NP0 50V | 330P PM5 R | 3027 | 319802134720 | RST SM 0603 | 47K PM5 COL | 3361 | 319802134720 | RST SM 0603 | 47K PM5 COL |
| 2635 | 223886715229 | CER1 0603 NP0 50V | 22P PM5 R | 3028 | 319802132240 | RST SM 0603 | 220K PM5 COL | 3362 | 319802131030 | RST SM 0603 | 10K PM5 COL |
| 2636 | 223886715331 | CER1 0603 NP0 50V | 330P PM5 R | 3029 | 319802132240 | RST SM 0603 | 220K PM5 COL | 3366 | 319802132210 | RST SM 0603 | 220R PM5 COL |
| 2637 | 223886715331 | CER1 0603 NP0 50V | 330P PM5 R | 3031 | 319802131540 | RST SM 0603 | 150K PM5 COL | 3369 | 235003510101 | RST NETW SMARV24 4X1R | PM5 |
| 2638 | 223886715331 | CER1 0603 NP0 50V | 330P PM5 R | 3032 | 319802132230 | RST SM 0603 | 22K PM5 COL | 3371 | 319802131010 | RST SM 0603 | 1R PM5 COL |
| 2639 | 223886715331 | CER1 0603 NP0 50V | 330P PM5 R | 3033 | 319802131030 | RST SM 0603 | 10K PM5 COL | 3372 | 319802132290 | RST SM 0603 | 22R PM5 COL |
| 2641 | 223886715331 | CER1 0603 NP0 50V | 330P PM5 R | 3035 | 319802132230 | RST SM 0603 | 22K PM5 COL | 3376 | 319802131090 | RST SM 0603 | 10R PM5 COL |
| 2642 | 223886715331 | CER1 0603 NP0 50V | 330P PM5 R | 3036 | 319802132240 | RST SM 0603 | 220K PM5 COL | 3378 | 319802131090 | RST SM 0603 | 10R PM5 COL |
| 2643 | 223886715331 | CER1 0603 NP0 50V | 330P PM5 R | 3037 | 319802131030 | RST SM 0603 | 10K PM5 COL | 3379 | 319802131090 | RST SM 0603 | 10R PM5 COL |
| 2644 | 223886715331 | CER1 0603 NP0 50V | 330P PM5 R | 3038 | 319802131030 | RST SM 0603 | 10K PM5 COL | 3381 | 319802131090 | RST SM 0603 | 10R PM5 COL |
| 2681 | 319801631010 | CER1 0603 NP0 50V | 1P COL | 3040 | 212010592383 | RST MOX 2W | RSS S 2R2 Pm5 | 3382 | 235003510101 | RST NETW SMARV24 4X1R | PM5 |
| 2682 | 319801631010 | CER1 0603 NP0 50V | 1P COL | 3042 | 319802132230 | RST SM 0603 | 22K PM5 COL | 3383 | 235003510101 | RST NETW SMARV24 4X1R | PM5 |
| 2683 | 319801731040 | CER2 0603 X7R 16V | 1N COL | 3043 | 319802132220 | RST SM 0603 | 2K2 PM5 COL | 3384 | 235003510101 | RST NETW SMARV24 4X1R | PM5 |
| 2686 | 222224119876 | CER2 1206 Y5V 10V | 10U P8020R | 3044 | 319802151010 | RST SM 0805 | 1R PM5 COL | 3385 | 235003510101 | RST NETW SMARV24 4X1R | PM5 |
| 2687 | 319801741050 | CER2 0603 Y5V 10V | 1U COL | 3045 | 319802133320 | RST SM 0603 | 3K3 PM5 COL | 3386 | 235003510101 | RST NETW SMARV24 4X1R | PM5 |
| 2688 | 319801741050 | CER2 0603 Y5V 10V | 1U COL | 3046 | 319802151590 | RST SM 0805 | 15R PM5 COL | 3387 | 2 | | |

Spare Parts List

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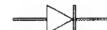
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3639 319802132730 RST SM 0603 27K PM5 COL
3641 319802131020 RST SM 0603 1K PM5 COL
3642 319802131010 RST SM 0603 1R PM5 COL
3648 319802190030 RST SM 0603 JUMP. 0R05 COL
3649 319802133320 RST SM 0603 3K3 PM5 COL
3650 319802131010 RST SM 0603 1R PM5 COL
3651 319802132290 RST SM 0603 22R PM5 COL
3652 319802132290 RST SM 0603 22R PM5 COL
3653 319802134720 RST SM 0603 4K7 PM5 COL
3654 319802190030 RST SM 0603 JUMP. 0R05 COL
3655 319802132230 RST SM 0603 22K PM5 COL
3656 319802135620 RST SM 0603 5K6 PM5 COL
3657 319802131030 RST SM 0603 10K PM5 COL
3658 319802134790 RST SM 0603 47R PM5 COL
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3663 319802131830 RST SM 0603 18K PM5 COL
3664 319802132730 RST SM 0603 27K PM5 COL
3665 319802134720 RST SM 0603 4K7 PM5 COL
3666 212211805947 RST SM 0603 RC0603 240K PM5
3667 319802134790 RST SM 0603 47R PM5 COL
3668 319802190030 RST SM 0603 JUMP. 0R05 COL
3669 319802131020 RST SM 0603 1K PM5 COL
3670 319802135610 RST SM 0603 560R PM5 COL
3671 319802134720 RST SM 0603 4K7 PM5 COL
3672 319802134720 RST SM 0603 4K7 PM5 COL
3673 319802134790 RST SM 0603 47R PM5 COL
3674 319802134720 RST SM 0603 4K7 PM5 COL
3675 319802134720 RST SM 0603 4K7 PM5 COL
3676 319802135610 RST SM 0603 560R PM5 COL
3677 319802134710 RST SM 0603 470R PM5 COL
3678 319802134720 RST SM 0603 4K7 PM5 COL
3679 319802134720 RST SM 0603 4K7 PM5 COL
3680 319802132230 RST SM 0603 22K PM5 COL
3681 319802132230 RST SM 0603 22K PM5 COL
3682 319802134720 RST SM 0603 4K7 PM5 COL
3683 319802134720 RST SM 0603 4K7 PM5 COL
3684 319802134720 RST SM 0603 4K7 PM5 COL
3685 319802135610 RST SM 0603 560R PM5 COL
3686 319802134710 RST SM 0603 470R PM5 COL
3687 319802134720 RST SM 0603 4K7 PM5 COL
3688 319802134720 RST SM 0603 4K7 PM5 COL
3689 319802134720 RST SM 0603 4K7 PM5 COL
3690 319802131020 RST SM 0603 1K PM5 COL
3691 319802131030 RST SM 0603 10K PM5 COL
3692 319802131030 RST SM 0603 10K PM5 COL
3693 319802136820 RST SM 0603 6K8 PM5 COL

6696 319802135610 RST SM 0603 560R PM5 COL
6697 319802131020 RST SM 0603 1K PM5 COL
6698 319802136810 RST SM 0603 680R PM5 COL
6699 319802138220 RST SM 0603 8K2 PM5 COL
6700 319802131030 RST SM 0603 10K PM5 COL
6701 319802133320 RST SM 0603 3K3 PM5 COL
6702 319802132230 RST SM 0603 22K PM5 COL
6703 319802132230 RST SM 0603 22K PM5 COL
6704 319802190030 RST SM 0603 JUMP. 0R05 COL
6705 319802133320 RST SM 0603 3K3 PM5 COL
6706 319802138220 RST SM 0603 8K2 PM5 COL
6707 319802131020 RST SM 0603 1K PM5 COL
6708 319802131020 RST SM 0603 1K PM5 COL
6709 319802131030 RST SM 0603 10K PM5 COL
6710 319802138220 RST SM 0603 8K2 PM5 COL
6711 319802131030 RST SM 0603 10K PM5 COL
6712 319802133320 RST SM 0603 3K3 PM5 COL
6713 319802131020 RST SM 0603 1K PM5 COL
6714 319802131020 RST SM 0603 1K PM5 COL
6715 319802131030 RST SM 0603 10K PM5 COL
6716 319802134730 RST SM 0603 47K PM5 COL
6717 319802132230 RST SM 0603 22K PM5 COL
6718 319802138220 RST SM 0603 8K2 PM5 COL
6719 319802131030 RST SM 0603 10K PM5 COL
6720 319802131030 RST SM 0603 10K PM5 COL
6721 319802131020 RST SM 0603 1K PM5 COL
6722 319802132230 RST SM 0603 22K PM5 COL
6723 319802138220 RST SM 0603 8K2 PM5 COL
6724 319802138220 RST SM 0603 8K2 PM5 COL
6725 213810500064 RST MOX 1W RSS 0R43 PM5
6726 319802132720 RST SM 0603 2K7 PM5 COL
6727 319802132230 RST SM 0603 22K PM5 COL
6728 319802133320 RST SM 0603 3K3 PM5 COL
6729 319802132230 RST SM 0603 22K PM5 COL
6730 319802132230 RST SM 0603 22K PM5 COL
6731 319802134730 RST SM 0603 47K PM5 COL
6732 319802134730 RST SM 0603 47K PM5 COL
6733 319802132230 RST SM 0603 22K PM5 COL
6734 319802132230 RST SM 0603 22K PM5 COL
6735 319802133930 RST SM 0603 39K PM5 COL
6736 319802132230 RST SM 0603 22K PM5 COL
6737 319802132720 RST SM 0603 2K7 PM5 COL
6738 319802131030 RST SM 0603 10K PM5 COL
6739 319802131530 RST SM 0603 15K PM5 COL
6740 319802131530 RST SM 0603 15K PM5 COL
6741 319802131530 RST SM 0603 15K PM5 COL
6742 319802131040 RST SM 0603 1K PM5 COL
6743 319802134720 RST SM 0603 4K7 PM5 COL
6744 319802131030 RST SM 0603 10K PM5 COL
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6747 319802131530 RST SM 0603 15K PM5 COL
6748 319802131530 RST SM 0603 15K PM5 COL
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6752 319802131530 RST SM 0603 15K PM5 COL
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6754 319802131530 RST SM 0603 15K PM5 COL
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6759 319802131530 RST SM 0603 15K PM5 COL
6760 319802131530 RST SM 0603 15K PM5 COL
6761 319802131530 RST SM 0603 15K PM5 COL
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6763 319802131530 RST SM 0603 15K PM5 COL
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6765 319802131530 RST SM 0603 15K PM5 COL
6766 319802131530 RST SM 0603 15K PM5 COL
6767 319802131530 RST SM 0603 15K PM5 COL
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6774 319802132720 RST SM 0603 2K7 PM5 COL
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6779 319802134720 RST SM 0603 4K7 PM5 COL
6780 319802132220 RST SM 0603 2K2 PM5 COL
6781 319802131030 RST SM 0603 10K PM5 COL
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6783 319802134730 RST SM 0603 47K PM5 COL
6784 319802132230 RST SM 0603 22K PM5 COL
6785 213810113472 RST CRB CFR-12 A 4K7 PM5 A
6786 213810113473 RST CRB CFR-12 A 47K PM5 A
6787 23220733478 RST FUSE NFR25H A 4R7 PM5
6788 213810113472 RST CRB CFR-12 A 4K7 PM5 A
6789 213810113331 RST CRB CFR-12 A 330R PM5 A
6790 213810113473 RST CRB CFR-12 A 47K PM5 A
6791 213810113472 RST CRB CFR-12 A 4K7 PM5 A
6792 213810113391 RST CRB CFR-12 A 390R PM5 A
6793 213810113561 RST CRB CFR-12 A 560R PM5 A
6794 213810113331 RST CRB CFR-12 A 330R PM5 A
6795 213810113331 RST CRB CFR-12 A 330R PM5 A



5005 313816877221 DRUM CHOKE 68UH/3A
5007 242253600428 IND FXD TSL0808S 10U PM10 B
5021 313816874261 T1321611G8-SMD
5022 242253600395 IND FXD TSL0808S 22U PM10 B
5051 313816874261 T1321611G8-SMD
5052 313816874261 T1321611G8-SMD
5053 313816874261 T1321611G8-SMD
5054 313816874261 T1321611G8-SMD
5055 313816874261 T1321611G8-SMD
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5201 313816874261 T1321611G8-SMD
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5301 313816874261 T1321611G8-SMD
5303 313816874261 T1321611G8-SMD
5306 313816874261 T1321611G8-SMD
5308 313816874261 T1321611G8-SMD
5311 313816874261 T1321611G8-SMD
5312 313816874261 T1321611G8-SMD
5321 313816874261 T1321611G8-SMD
5331 313816874261 T1321611G8-SMD
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5337 313816874261 T1321611G8-SMD
5338 313816874261 T1321611G8-SMD
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5373 313816874261 T1321611G8-SMD
5421 313816874261 T1321611G8-SMD
5422 313816874261 T1321611G8-SMD
5423 313816874261 T1321611G8-SMD
5426 313816874261 T1321611G8-SMD
5451 313816874261 T1321611G8-SMD
5456 313816874261 T1321611G8-SMD
5457 313816874261 T1321611G8-SMD
5471 313816874261 T1321611G8-SMD
5501 242254942103 IND FXD 0805 EMI1MHZ 2K2 R
5502 242254942103 IND FXD 0805 EMI1MHZ 2K2 R
5503 242254942103 IND FXD 0805 EMI1MHZ 2K2 R
5505 242254942103 IND FXD 0805 EMI1MHZ 2K2 R
5506 242254942103 IND FXD 0805 EMI1MHZ 2K2 R
5507 242254942103 IND FXD 0805 EMI1MHZ 2K2 R
5611 242253595853 IND FXD SM 0603 0U10 PM10 R
5612 242253595853 IND FXD SM 0603 0U10 PM10 R
5613 242253595853 IND FXD SM 0603 0U10 PM10 R
5615 242253595853 IND FXD SM 0603 0U10 PM10 R
5616 242253595853 IND FXD SM 0603 0U10 PM10 R
5631 242253595853 IND FXD SM 0603 0U10 PM10 R
5632 242253595853 IND FXD SM 0603 0U10 PM10 R
5681 313816874261 T1321611G8-SMD
5682 313816874261 T1321611G8-SMD
5901 242253594329 IND FXD SPT0203A 22U PM5A
5902 242253600036 IND FXD TSL0808S 1U PM10 A
5905 242253594329 IND FXD SPT0203A 22U PM5A



6001 933770370215 DIO REG SM BZX84-B12 (PHSE)
6006 932208282668 DIO REC SM SS34 (GI) R
6019 933913910115 DIO SIG SM BAS32L (PHSE) R
6020 933913910115 DIO SIG SM BAS32L (PHSE) R
6021 933952580685 DIO SIG SM BAV103 (TEGO) R
6022 933770460215 DIO REG SM BZX84-B33 (PHSE)
6023 933137400215 DIO REG SM BZX84-05V6 (PHSE)
6025 933913910115 DIO SIG SM BAS32L (PHSE) R
6026 933913910115 DIO SIG SM BAS32L (PHSE) R
6027 933913910115 DIO SIG SM BAS32L (PHSE) R
6028 933913910115 DIO SIG SM BAS32L (PHSE) R
6031 933913910115 DIO SIG SM BAS32L (PHSE) R
6031 933913910115 DIO SIG SM BAS32L (PHSE) R
6302 933913910115 DIO SIG SM BAS32L (PHSE) R
6311 319801010620 DIO SIG SM BAV99 (COL) R
6312 319801010620 DIO SIG SM BAV99 (COL) R
6313 319801010620 DIO SIG SM BAV99 (COL) R
6315 319801010620 DIO SIG SM BAV99 (COL) R
6316 933137380215 DIO REG SM BZX84-C4V7 (PHSE)
6317 933913910115 DIO SIG SM BAS32L (PHSE) R
6411 933913910115 DIO SIG SM BAS32L (PHSE) R
6412 933913910115 DIO SIG SM BAS32L (PHSE) R
6604 319801010620 DIO SIG SM BAV99 (COL) R
6606 319801010620 DIO SIG SM BAV99 (COL) R
6607 319801010620 DIO SIG SM BAV99 (COL) R
6608 319801010620 DIO SIG SM BAV99 (COL) R
6609 319801010620 DIO SIG SM BAV99 (COL) R
6610 319801010620 DIO SIG SM BAV99 (COL) R
6611 319801010620 DIO SIG SM BAV99 (COL) R
6612 933952580685 DIO SIG SM BAV103 (TEGO) R
6613 933137380215 DIO REG SM BZX84-C4V7 (PHSE)
6631 319801010620 DIO SIG SM BAV99 (COL) R
6632 319801010620 DIO SIG SM BAV99 (COL) R
6682 319801010630 DIO SIG SM BAS316 (COL) R
6991 932217552682 LED VS L-44SGC (KIEL) B
6992 932217552682 LED VS L-44SGC (KIEL) B
6993 932217552682 LED VS L-44SGC (KIEL) B
6994 932213169687 IR RECEIVER
TSOP1836SS3V(TEG)L



7005 932215923668 IC SM LM2596SX-5.0 (NSC0) R
7011 932211529668 FET POW SM SI9433DY (TEGO)
7012 933967310685 TRA SIG SMBC848C (ONSE) R
7013 933967310685 TRA SIG SMBC848C (ONSE) R
7016 932217562687 IC SM LD1085D2T33 (ST) L
7017 932211529668 FET POW SM SI9433DY (TEGO)
7018 933967310685 TRA SIG SMBC848C (ONSE) R
7021 932216888668 IC SM LM317D2T (ST) R
7022 932216733668 IC SM LD1117533 (ST) R
7023 933967310685 TRA SIG SMBC848C (ONSE) R
7024 933967310685 TRA SIG SMBC848C (ONSE) R
7025 934000540115 FET SIG SMBSPT126 (PHSE) R
7026 932217564687 IC SM L7805CD2T (ST) L
7027 932217564687 IC SM L7805CD2T (ST) L
7028 933967310685 TRA SIG SMBC848C (ONSE) R
7030 932217563685 IC SM LM78L05ACU (ST) R
7031 933507970653 IC SM HEF4538BT (PHSE) R
7032 933967310685 TRA SIG SMBC848C (ONSE) R
7033 933967310685 TRA SIG SMBC848C (ONSE) R
7035 933373070653 IC SM HEF4077BT (PHSE) R
7036 933967310685 TRA SIG SMBC848C (ONSE) R
7037 933967310685 TRA SIG SMBC848C (ONSE) R

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7038 933967310685 TRA SIG SMBC848C (ONSE) R
 7039 933967310685 TRA SIG SMBC848C (ONSE) R
 7041 933967310685 TRA SIG SMBC848C (ONSE) R
 7042 933967310685 TRA SIG SMBC848C (ONSE) R
 7051 932216888668 IC SM LM317D2T (ST) R
 7052 932216732668 IC SM LD1117S25 (ST) R
 7201 935256600112 IC SM P80C51RA+4A (PHSE) L
 7202 932212662682 IC M24C16-BN6 (ST) L
 7203 932217680682 IC M29F010B-90P1 (ST) L
 7205 935218650118 IC SM 74LVC373APW (PHSE) R
 7206 932216554668 IC SM 74LCX139T (ST) R
 7301 932214526668 IC SM M24C02-WMN6 (ST) R
 7321 935260739118 IC SM 74LVC14APW (PHSE) R
 7322 932217743685 IC SM LM810M3-4.0 (NSC0) R
 7323 933714830653 IC SM 74HC4052D (PHSE) R
 7331 932217970671 IC SM JAGASM (SAGE) Y
 7351 933967310685 TRA SIG SMBC848C (ONSE) R
 7361 932216677682 IC SM M12L16161A-7T (ESMT) L
 7362 932216677682 IC SM M12L16161A-7T (ESMT) L
 7363 932216677682 IC SM M12L16161A-7T (ESMT) L
 7401 935267395518 IC SM SAA7118E/V1 (PHSE) R
 7402 933967310685 TRA SIG SMBC848C (ONSE) R
 7403 933967310685 TRA SIG SMBC848C (ONSE) R
 7405 933967310685 TRA SIG SMBC848C (ONSE) R
 7406 933967310685 TRA SIG SMBC848C (ONSE) R
 7407 933967310685 TRA SIG SMBC848C (ONSE) R
 7408 933967310685 TRA SIG SMBC848C (ONSE) R
 7409 933967310685 TRA SIG SMBC848C (ONSE) R
 7410 935209280118 IC SM 74LVT86D (PHSE) R
 7411 319801043360 TRA SIG SMPMBT2369 (COL) R
 7412 319801043360 TRA SIG SMPMBT2369 (COL) R
 7413 319801043360 TRA SIG SMPMBT2369 (COL) R
 7415 319801043360 TRA SIG SMPMBT2369 (COL) R
 7431 932216733668 IC SM LD1117S33 (ST) R
 7451 932216918671 IC SM FLI22 (SAGE) Y
 7471 932217603668 IC SM K4S643232E-TC50(SMGK)
 7503 932217686668 IC SM THC63LVDM83A (THIN) R
 7505 932217686668 IC SM THC63LVDM83A (THIN) R
 7621 933967310685 TRA SIG SMBC848C (ONSE) R
 7901 935172510112 IC TDA1308/N1 (PHSE) L
 7903 823827712241 IC PT2399 L
 7904 823827712241 IC PT2399 L
 7905 933510720686 IC MC78L05ACP (MOTA) R
 7906 933221960126 TRA SIG BC638 (PHSE) A
 7907 932209011673 TRA SIG BC548C (KEC0) A
 7911 932209011673 TRA SIG BC548C (KEC0) A
 7912 932210142676 TRA SIG BC558C (KEC0) A
 7913 932209011673 TRA SIG BC548C (KEC0) A
 7914 932210142676 TRA SIG BC558C (KEC0) A
 7921 933237790126 TRA SIG BC547C (PHSE) A
 7922 932209011673 TRA SIG BC548C (KEC0) A
 7923 932209011673 TRA SIG BC548C (KEC0) A
 7924 932209011673 TRA SIG BC548C (KEC0) A
 7931 935261847112 IC TDA1517/N3 (PHSE) L
 7991 933553530676 TRA SIG TBC548C (TOSJ) A
 7992 933553530676 TRA SIG TBC548C (TOSJ) A
 7996 933510720686 IC MC78L05ACP (MOTA) R
 7997 933553530676 TRA SIG TBC548C (TOSJ) A



GENERAL PRODUCT SPECIFICATION

- . 18.1 LCD monitor with TV function.
- . PC 15 pins D-SUB analog interface.
- . TV Tuner, S-Video with L/R RCA Audio in.
- . SCART (RGB, AV) input interface (for Europe model)
- . Cinch input (YUV, AV) input interface (for NAFTA, AP model)
- . PC audio line in, and headphone out interface
- . L/R audio line output.
- . NTSC, PAL, SECAM TV system.
- . 100 Pages Teletext (Europe) and Closed caption, V-chip (NAFTA)
- . Video on PC graphic picture in picture feature
- . PC graphic auto picture adjustment
- . 17 user modes
- . User friendly OSD menu
- . User friendly remote controller
- . DDC2B communication capability
- . MAX. resolution 1280 x 1024 non-Interface at 75 Hz
- . SXGA 18.1 color TFT LCD flat panel
- . Easy tilt and swivel base
- . Full range power supply adapter 90 264 VAC
- . CE environmental policy
- . Anti-glare to reduce light reflection
- . Power management capability
- . TCO 95
- . VESA standard wall mount kit (option)

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|------------|------------|--------------------------------|------------|-----------------|---|
| CLASS NO. | | 18.1" TFT SXGA LCD Monitor/ TV | | 8639 000 12344 | |
| 2002-05-06 | | TYPE : 180MT10P/00C | | BRAND : PHILIPS | |
| NAME | Robert Lin | SUPERS | 36 | 590 | 1 |
| TY | CHECK | DATE | 2002-05-06 | Property of | PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E. |

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| | | BRAND : PHILIPS | | | |
| NAME | Robert Lin | SUPERS. | 36 | 590 | — 3 10 A4 |
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PHILIPS



- 1.0 FOREWORD
 This specification describes a 18.1" SXGA multi-scan color Super-TFT LCD Monitor/TV with max. resolution upto 1280X1024/75Hz non-interlaced.
- 2.0 PRODUCT PROFILE
 Philips 18.1" TFT LCD monitor/TV can connect to PC with analog D-SUB, and has TV, Video interface with integrated base.
 Meet word wide five major TV system:
 West Europe, East Europe, NAFTA, Asia Pacific and China.
- 2.1 LCD
 Type NR. : TX46D14VC0HAB
 Dimensions : 18.1
 Pitch (mm) : 0.2805mm
 Color pixel arrangement: RGB vertical stripes
 Display surface : Antiglare
 Number of color : 16.7M (8 bits /color)
 Backlight : 8 CCFL
 Active area(WxH) : 359.0 mm x 287.2 mm
 Viewing angle : CR>=10
 Typical : Vertical : 170 , Horizontal : 170
- Contrast ratio : Typical 300.
 Luminance of white : Typical 300 Nits.
- 2.2 Scanning frequencies
 Hor. : 30 - 80KHz Var. : 56 - 75 Hz
- 2.3 Video dotrate : <135 MHz
- 2.4 Power input : 90 - 264 Vac, 50/60 2Hz
 : Adapter 12 +/- 1V 6.0A output
- 2.5 Power consumption : typ 68 W
- 2.6 Dimensions : 452 mm W X 452 mm H X 200 mm D
- 2.7 Weight : 6.3 Kg
- 2.8 Functions :
 15 pins D-sub analog interface.
 Tuner, S-video (video and RCA audio jack), SCART (Europe model), Cinch (NAFTA, AP model), PC audio line in input, Headphone output interface
 And line out.
- 2.9 Ambient temperature : 0 - 35 C
- 2.10 Regulatory compliance :
 FCC, EPA, UL, CSA, TUV/GS, TUV/ERG, CE, C-Tick, SEMKO, TCO95, Nutek,
 MPRII, BSMI, PSB, CB, PZ1, ISO13406-2.
 EN60950/IEC60950,
 EN55013, EN55020, EN55022, EN55024, EN60555-2, EN61000-3-2

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| | | BRAND : PHILIPS | | | |
| NAME | Robert Lin | SUPERS. | 36 | 590 | — 4 10 A4 |
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3.0 Electrical characteristics

3.1 Interface signals cables

VGA Interface Cable (for all model)
Length : 1.8M +/- 50mm

Stereo RCA audio cable (option)
Length : 1.5M +/- 50mm

S-video cable (option)
Length : 1.5M +/- 50mm

SCART cable (option)
Length : 1.5M +/- 50mm

YCbCr cable (option)
Length : 1.5M +/- 50mm

AV cable (option)
Length : 1.5M +/- 50mm

Mini Jack stereo cable (for all model)
Length : 1.5M +/- 50mm

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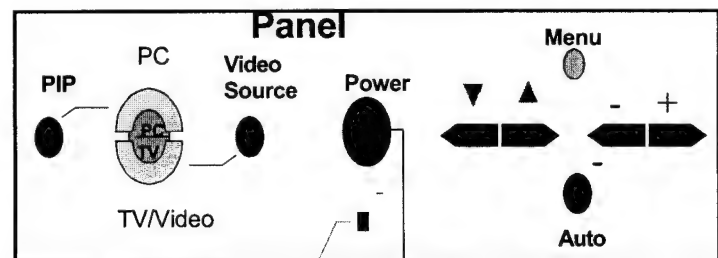


3.1 User interface

On screen display user control via front keypad (PC and TV OSD) and remote control for TV.

3.2.1 Front control panel

Front Control



It's Top/Down LED will be switched by pushing

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3.2.2 Front control panel definition :

PIP : PIP enable/disable and size select (active in PC mode).
 PC/TV : PC/TV select key.
 PC/TV LED: PC/TV status.
 Video Source: AV source select key.
 Power: Power switch.
 Power LED: Normal operation green. Sleeping mode green with blanking.
 IR receiver.
 -CH-: Channel up and down, and OSD cursor up and down.
 -Vol-: Volume up and down, and OSD cursor left and right.
 Auto : Auto adjust PC H,V size and position and video phase and clock.
 Menu: Enable OSD menu (enter key for PC).

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3.2.3 PC Signal control via front keyboard:

Language : ENGLISH , ESPANOL , FRANCAIS , DEUTSCH , ITALIANO
 Adjust position: H-position, V-position.

Brightness and contrast: Lamps brightness and PC graphic contrast adjustment.

Video noise : Phase adjustment, Clock adjustment

Adjust color : Original panel color , 9300K for CAD/CAM use
 6500k for image management, User color red, green and blue color adjustable.

OSD settings : OSD H,V position settings

Product information : Serial number and timing information

Rest to factory setting : Reset brightness, contrast, positions, phase, clock to factory settings.

Picture in picture : Adjust PIP size and position.
 Select the PIP audio source.

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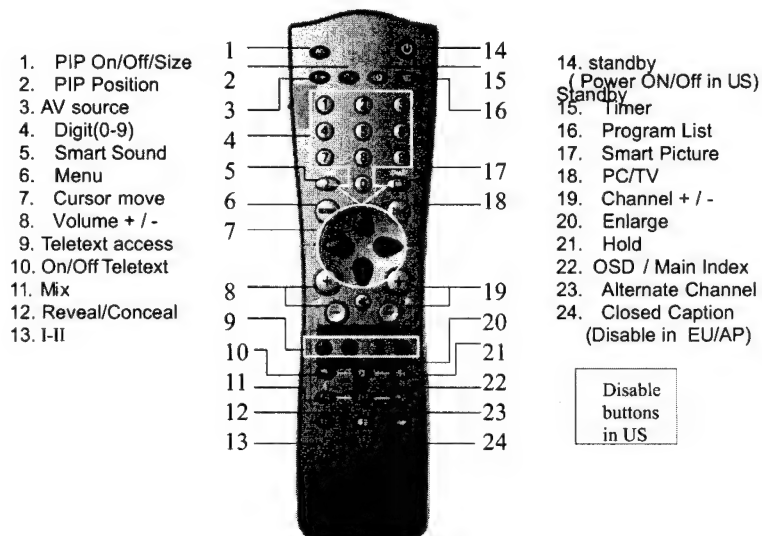
| | | | | | |
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3.2.4 TV Signal control via front keyboard and RC control:

3.2.4.1 Remote control function



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3.2.4.2 Remote control key definition

1. PIP On/Off and size
- PIP position
- Press source select key to select EXT, S-Video and TV (AV, CVI, S-Video and TV for Nafta)
- Digital number: For direct access to programs. For a 2 digit program number, the 2nd digit must be entered before the dash disappears.
- Smart sound: To access a series of settings: VOICE, MUSIC, THEATRE and return to PERSONAL
6. Menu: To display or exit from the menus
7. Cursor: These 4 keys are used to move within the menus
- Mute : To disable or enable the sound.
8. Volume: To adjust the sound level
9. Teletext Access: Coloured zones are displayed at the bottom of the screen. The 4 coloured keys give access to the corresponding subjects or pages. (Disable in Nafta)
- The coloured zones flash when the subject or the page is not yet available.
10. On/off teletext: To call up or exit from teletext. When first pressed, the main index page appears with a list of the items available. Each page has a corresponding 3-figure number. If the selected channel does not broadcast teletext, 100 will appear and the screen will remain blank (in this case, exit from teletext and choose another channel). (Disable in NAFTA)
11. Mix: Overlaying text on the TV picture To activate or deactivate screen overlay.
12. Reveal/Conceal: Use this key to reveal/conceal hidden information (answers to puzzles). (Disable in NAFTA)
13. I-II: Double page teletext
- To activate or deactivate the double page teletext display mode. The active page is displayed on the left and the following page is displayed on the right. Press hold if you want to hold a page (i.e. the contents page). The active page is then displayed on the right. To return to normal mode. Press I-II. Stereo, Mono, Sap sound select.
14. Standby (power on/off key in US): To set the TV to standby mode. To switch the TV set on again press P +/- or 0.9.
15. Timer: To select the length of time before the set automatically switches to standby (from 0 to 240 minutes)
16. Program list: To display/clear the list of programs. Use the keys up/down select a program and the key right display it. The symbol locked is displayed alongside all program which are locked or unlocked symbol means if they are not locked.
17. Smart picture: To access a series of settings: RICH, NATURAL, SOFT, MULTIMEDIA and return to PERSONAL.
- (Movies, sports, weak signal, multimedia and personal setting for Nafta)
- PC/TV: PC/TV function select key.
- Channel +/-
- Enlarge: Page enlargement Press this key to display the upper, then lower part of the screen, and then to return to the normal page size. (Disable in NAFTA)
21. Hold : Hold a Page. (Disable in NAFTA)
22. OSD/Main index: Screen information To display / remove the program number, the name (if it exists), the time, the sound mode and the time remaining on the timer. Hold down for 5 seconds to permanently display the programme number on the

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screen. The volume level and the smart control adjustments are then displayed each time they are used.

23. Alternate channel: To access the previously viewed program
24. Close caption: Closed caption selection. (disable in EE/WE/AP/CN)

3.2.4.3 TV OSD control function

Auto install

For Europe:

The first time you switch on the television, use the autostore function in the OSD to start the tuning. The operation takes several minutes.

A display shows the search status and the number of programs found. When it has finished the menu disappears.

To exit or interrupt the search, press the menu key.

1. If the transmitter or the cable network broadcasts the automatic sort signal, the programs will be correctly numbered.

2. If not, the programs found will be numbered in descending order starting at 99, 98, 97, etc.

Use the SORT menu to renumber them.

Some transmitters or cable networks broadcast their own sort parameters (region, language, etc.).

Where this is the case, make your choice using the Up down keys and confirm with right key.

For Nalta:

Select the tuner mode in OSD menu for cable, antenna or auto select.
Use the autoprogram function to search channel.

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Sort the programs

For Europe:

1. Press the menu key. The main menu is displayed.

2. Select INSTALL (down key), then press right key.

The INSTALL menu appears.

3. Using the down key, select SORT then press right key.

The SORT menu appears. The FROM option is activated.

Note: this menu works as follows:

Change "FROM" (enter the current program number).

"TO" (enter the new number).

EXCHANGE numbers" (the operation is carried out).

4. Select the program you wish to renumber using left right keys or 0 to 9.

Example: to renumber program 78 as 2 press 78.

(Select TO (using down key) and enter the new number with left right keys or 0 to 9 (for the example given, enter 2).

6. Select EXCHANGE (down key) and press right.

The message EXCHANGED appears, the exchange takes place. In our example,

program 78 is renumbered as 2 (and program 2 as 78).

7. Select the option FROM (up key) and repeat stages 4 to 6 as many times as there are programs to renumber.

8. To exit from the menus, press OSD key.

For Nalta:

Use Channel edit function to skip or enable the channel

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Select language and country

For Europe:

1. Press the menu key to display the main menu.
2. Select INSTALL (down), then press right.
- The INSTALL menu appears.
- The LANGUAGE option is activated.
- 3 Press right to go into the LANGUAGE menu.
- 4 Select your language with the up down keys.
- The menu will appear in the chosen language.
- 5 Press left to exit the LANGUAGE menu.
- 6 Select the option COUNTRY and press right.
- 7 Select your country with up down keys.
- If your country does not appear in the list, select OTHER.
- 8 Press right to exit the COUNTRY menu.
- 9 To exit from the menus, press OSD.

For Nafta:

User can select language.

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FORM 101 (5/02)

PHILIPS

Automatic tuning

For Europe:

This menu allows you to automatically search for all the programs available in your region (or on your cable network).

1. First carry out operations 1 to 8 above, then:
- 2 Press down once to select AUTO STORE then press right. The search begins.

After several minutes, the INSTALL menu reappears automatically.

3. If the transmitter or the cable network broadcasts the automatic sort signal, the programs will be correctly numbered.

4. If not, the programs found will be numbered in descending order starting at 99, 98, 97, etc.

Use the SORT menu to renumber them.

Some transmitters or cable networks broadcast their own sort parameters (region, language, etc.). Where this is the case, make your choice using the Up down keys and confirm with right.

To exit or interrupt the search, press the menu key.

6. To exit from the menus, press OSD.

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FORM 101 (5/02)

PHILIPS

**Manual tuning**

For Europe:

This menu allows you to store the programs one by one.

1. Press menu.
2. Select INSTALL (down), then press right. The INSTALL menu appears.
3. Select MANUALSTORE (down) then press right.

The menu appears:

4. Press right to go to the SYSTEM menu.

Use up/down to choose EUROPE (automatic detection*) or manual detection with WEST EUR (standard BG reception), EAST EUR (standard DK reception), UK (standard I reception) or FRANCE (standard LL*).

Then press left to exit from the menu.

* Except for France (standard LL*); select the option FRANCE.

5. Select SEARCH and press right.

The search begins. As soon as a program is found, the search will stop. If you know the frequency of the program required, enter its number directly using the 0-9 keys and go to step 7.

6. If reception is unsatisfactory, select FINE

TUNE and hold down left or right key.

7. Select PROG.NO (program number) and

use the left/right or 0 to 9 keys to enter the desired number.

8. Select STORE and press right. The message

STORED appears. The program is stored.

9. Repeat steps 5 to 8 for each program to be stored.

To exit: press the OSD key.

For Nafta:

Manual function allows user to fine tune the frequency.

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**Program Name**

You may, if you wish, give a name to the first 40 programs (from 1 to 40).

1. Press menu.
2. Select INSTALL (down), then press right. The INSTALL menu appears.
3. Press down 5 times to select NAME (concealed at the bottom of the screen), then press right.

The menu appears:

4. Select the program you wish to name using the keys 0-9 or - P+.

Note: at the time of installation, the programs are automatically named when the identification signal is transmitted.

5. Use the keys left/right to move within the name display area (5 characters).

6. Use keys up/down to choose the characters.

7. Press menu when the name has been entered.

The program name is stored.

8. Repeat steps 4 to 7 for each program to be named.

9. To exit from the menus, press OSD.

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**Adjust the picture**

1. Press menu then right. The PICTURE menu appears:
2. Use up down keys to select a setting and left right keys to adjust.
Note: the menu is a scroll-down menu.
Keep the key down held down to access the settings hidden at the bottom of the screen.
3. Once the necessary adjustments have been made, select the option STORE and press right to store them.
4. To exit from the menus, press menu.

Description of the settings:

BRIGHTNESS: alters the brightness of the image.

COLOUR: alters the color intensity.

CONTRAST (PICTURE at Nafta): alters the variation between light and dark tones.

SHARPNESS: alters the crispness of the image.

STORE: stores the picture settings. (No this function in Nafta)

TINT: Alters the skin color. (No this function in PAL)

COLOUR TEMP (color temperature):

adjusts the color temperature of the picture. Three options are available here:

COOL (blue white), NORMAL (balanced) or WARM (red white).

IMAGEMAX: Enhance the picture contrast. (No this function at Europe)

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**Adjust the sound**

1. Press menu, select the SOUND function (down key) and press right key. The SOUND menu appears :
2. Use up down keys to select a setting and left right keys to adjust.
Note: to access the AVL setting (hidden at the bottom of the screen) hold down down key.
3. Once the necessary adjustments have been made, select the option STORE and press right to store them.
4. To exit from the menus, press OSD key.

Description of the settings:

TREBLE: alters the level of the high frequency sound.

BASS: alters the level of the low frequency sound.

BALANCE: to balance the sound between the left and right speakers.

DELTA VOLUME (volume difference): allows you to compensate for the volume differences between the different programs or the EXT inputs. This setting is available for programs 1 - 40 and the EXT sockets. (for Europe)

STORE: stores the sound settings.

AVL (Automatic Volume Leveller): automatic volume control used to avoid sudden increases in volume, particularly when changing programs or during advertisements

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Timer Function

This menu allows you to use your TV as an alarm clock.

1. Press menu.
2. Select FEATURES (down) and press right twice. The TIMER menu appears.
3. Press right to enter and exit the sub-menus and use keys up/down to adjust.
4. TIME: enter current time.

Note: the time is updated automatically each time the set is switched on using teletext information taken from program 1. If program 1 does not have teletext, the update will not take place.

5. START TIME: enter the start time.
6. STOP TIME: enter the stop time.
7. PROG: NO: enter the number of the program required.
8. ACTIVATE: you can set the alarm to be activated:
 - ONCE ONLY for a one-off alarm,
 - DAILY for a daily alarm or
 - STOP to cancel.

9. Press standby to set the TV to standby. It will automatically switch on at the time programmed. If you leave the TV switched on, it will only change program at the time indicated. The combination of the CHILD LOCK and TIMER functions may be used to limit the length of time your television is in use, for example, by your children.

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Locking Set

For Europe:

You can bar access to certain programs or completely lock the set by locking the keys.

Locking programs

1. Press menu.
 2. Select FEATURES (down) and press right.
 3. Select PARENTAL CONT. (down) and press right.
 4. Enter your confidential access code. The first time, enter the code 0711 then confirm by re-entering 0711. The menu appears.
 5. Press right to go into the menu.
 6. Use keys up/down to select the required program and confirm with right. The symbol is displayed alongside the programs or sockets that have been locked.
- Press OSD to exit.

To watch a program which has been locked

You will now need to enter the confidential code; otherwise the screen will remain blank. The INSTALL menu access is also locked. Caution: in the case of encrypted programs which use an external decoder, it is necessary to lock the corresponding EXT socket.

To unlock all programs

Repeat stages 1 to 4 above, then select CLEAR ALL and press right. To change the confidential code Repeat stages 1 to 4 above, then:

5. Select CHANGE CODE and enter your own 4-digit number.
6. Confirm by entering it again.

Your new code will be stored.

7. Press OSD to exit from the menus.

If you have forgotten your confidential code, enter the universal code 0711 twice.

Locking the keys

1. Press menu, select FEATURES (down) and press right.
2. Select CHILD LOCK (down) and press right to set the lock to ON.
3. Switch off the set and put the remote control out of sight.

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| | | BRAND : PHILIPS | | | |
| 2002-05-06 | | | | | |
| NAME | Robert Lin | SUPERS | 36 | 590 | 20 10 A4 |
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The set cannot be used (it can only be switched on using the remote control).
4. To cancel: switch CHILD LOCK to OFF.

For Nafta:
The universal code is same as Europe.
Use auto lock function to select V-chip function.
Use Closed Cap to select caption mode.

3.3 PC signal timing requirement and TV system requirement

3.3.1 PC interface

3.3.1.1 Mode storing capacity
User modes : 17

3.3.1.2 Available timings
Factory pre-set timing, size and centering are according to the reference timing charts.

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NAME Robert Lin

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| MODE NO. | 1 | * 2 | * 3 | 4 |
|----------------|------------------|------------------|--------------------|-------------------|
| RESOLUTION | 640 x 350 | 720 x 400 | 640 x 480 | 640x480 |
| Dot clock(MHz) | 25.175 | 28.321 | 25.175 | 30.240 |
| f h | 31.469kHz | 31.469kHz | 31.469kHz | 35.0kHz |
| A (us) | 31.78(800 dots) | 31.78(900dots) | 31.778 (800 dots) | 28.571(864 dots) |
| B (us) | 3.813(96 dots) | 3.813(108dots) | 3.813 (96 dots) | 2.116(64 dots) |
| C (us) | 1.907(48 dots) | 1.907(54dots) | 1.907 (48 dots) | 3.175(96 dots) |
| D (us) | 25.42(640 dots) | 25.42(720dots) | 25.422 (640 dots) | 21.164(640 dots) |
| E (us) | 0.636(16 dots) | 0.636(18dots) | 0.636 (16 dots) | 2.116(64 dots) |
| f v | 70Hz(70.09) | 70Hz(70.087) | 60Hz (59.940) | 66.7 HZ(66.667) |
| O (ms) | 14.27(449 lines) | 14.27(449 lines) | 16.683 (525 lines) | 15.000(525 lines) |
| P (ms) | 0.064(2 lines) | 0.064(2 lines) | 0.064 (2 lines) | 0.086(3 lines) |
| Q (ms) | 1.875(59 lines) | 1.080(34 lines) | 1.049 (33 lines) | 1.114(39 lines) |
| R (ms) | 11.12(350 lines) | 12.71(400 lines) | 15.253 (480 lines) | 13.714(480 lines) |
| S (ms) | 1.208(38 lines) | 0.413(13 lines) | 0.317 (10 lines) | 0.086(3 lines) |
| SYNC. H/V | +/ - | - / + | - / - | + / + |
| POLARITY | | | | Or - / - |
| SEP. SYNC | Y | Y | Y | Y |

| MODE NO. | 5 | * 6 | 7 | 8 |
|----------------|-------------------|--------------------|-------------------|-------------------|
| RESOLUTION | 640 x 480 | 640 x 480 | 800 x 600 | 800 x 600 |
| Dot clock(MHz) | 31.500 | 31.500 | 36.000 | 40.000 |
| f h | 37.861kHz | 37.500kHz | 35.156kHz | 37.879kHz |
| A (us) | 26.413(832 dots) | 26.667 (840 dots) | 28.44 (1024 dots) | 26.40 (1056 dots) |
| B (us) | 1.270(40 dots) | 2.032 (64 dots) | 2.000 (72 dots) | 3.200 (128 dots) |
| C (us) | 4.064(128 dots) | 3.810 (120 dots) | 3.556 (128 dots) | 2.200 (88 dots) |
| D (us) | 20.317(640 dots) | 20.317 (640 dots) | 22.22 (800 dots) | 20.00 (800 dots) |
| E (us) | 0.508(16 dots) | 0.508 (16 dots) | 0.667 (24 dots) | 1.000 (40 dots) |
| f v | 72.809Hz | 75Hz (75) | 56Hz (56.25) | 60Hz (60.316) |
| O (ms) | 13.735(520 lines) | 13.333 (500 lines) | 17.78 (625 lines) | 16.58 (628 lines) |
| P (ms) | 0.079(3 lines) | 0.080 (3 lines) | 0.057 (2 lines) | 0.106 (4 lines) |
| Q (ms) | 0.739(28 lines) | 0.427 (16 lines) | 0.626 (22 lines) | 0.607 (23 lines) |
| R (ms) | 12.678(480 lines) | 12.80 (480 lines) | 17.07 (600 lines) | 15.84 (600 lines) |
| S (ms) | 0.023(1 lines) | 0.027 (1 line) | 0.028 (1 line) | 0.026 (1 line) |
| SYNC. H/V | - / - | - / - | + / + | + / + |
| POLARITY | | | | |
| SEP. SYNC | Y | Y | Y | Y |

A : H-Total
B : H- Sync width
C : H- Back porch
D : H- Video width
E : H- Front porch

O : V-Total
P : V- Sync width
Q : V- Back porch
R : V- Video length
S : V- Front porch

CLASS NO.

18.1TFT SXGA LCD Monitor / TV
TYPE : 180MT10P/00C
BRAND : PHILIPS

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NAME Robert Lin

SUPERVISOR

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GENERAL PRODUCT SPECIFICATION

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| MODE NO. | 9 | * 10 | 11 | * 12 |
|----------------|-------------------|--------------------|-------------------|-------------------|
| RESOLUTION | 800 x 600 | 800 x 600 | 832 x 624 | 1024 x 768 |
| Dot clock(MHz) | 50.000 | 49.500 | 57.280 | 65.000 |
| f h | 48.077kHz | 46.875kHz | 49.722kHz | 48.363kHz |
| A (us) | 20.80 (1040dots) | 21.333 (1056dots) | 20.11 (1152dots) | 20.677(1344 dots) |
| B (us) | 2.400 (120 dots) | 1.616 (80 dots) | 1.117 (64 dots) | 2.092(136 dots) |
| C (us) | 1.280 (64 dots) | 3.232 (160 dots) | 3.911 (224 dots) | 2.462(160 dots) |
| D (us) | 16.00 (800 dots) | 16.162 (800 dots) | 14.52 (832 dots) | 15.754(1024 dots) |
| E (us) | 1.120 (56 dots) | 0.323 (16 dots) | 0.559 (32 dots) | 0.369(24 dots) |
| f v | 72Hz (72.188) | 75Hz (75.000) | 75Hz (74.546) | 60.004Hz |
| O (ms) | 13.85 (666 lines) | 13.333 (625lines) | 13.41 (667 lines) | 16.666(806 lines) |
| P (ms) | 0.125 (6 lines) | 0.064 (3 lines) | 0.060 (3 lines) | 0.124(6 lines) |
| Q (ms) | 0.478 (23 lines) | 0.448 (21 lines) | 0.784 (39 lines) | 0.600(29 lines) |
| R (ms) | 12.48 (600lines) | 12.80 (600lines) | 12.55 (624 lines) | 15.880(768 lines) |
| S (ms) | 0.770 (37 line) | 0.021 (1 line) | 0.020 (1 lines) | 0.062(3 lines) |
| SYNC. H/V | + / + | + / + | + / + | - / - |
| POLARITY | | | | |
| SEP. SYNC | Y | Y | Y | Y |

| MODE NO. | 13 | * 14 | 15 | 16 |
|----------------|--------------------|--------------------|--------------------|--------------------|
| RESOLUTION | 1024x768 | 1024x768 | 1152x870 | 1280x1024 |
| Dot clock(MHz) | 75.000 | 78.750 | 100 | 108 |
| f h | 56.476kHz | 60.023kHz | 68.681kHz | 63.981kHz |
| A (us) | 17.707 (1328dots) | 16.66 (1312dots) | 14.56 (1456dots) | 15.63(1688 dots) |
| B (us) | 1.1813 (136dots) | 1.219(96 dots) | 1.28 (128 dots) | 1.037(112 dots) |
| C (us) | 1.920 (144 dots) | 2.235 (176 dots) | 1.44 (144 dots) | 2.296(160 dots) |
| D (us) | 13.653 (1024dots) | 13.003 (1024dots) | 11.52 (1152 dots) | 11.852(1280 dots) |
| E (us) | 0.320 (24 dots) | 0.203 (16 dots) | 0.32 (32 dots) | 0.445(48 dots) |
| f v | 70Hz (70.069) | 75Hz (75.029) | 75Hz (74.979) | 60.020Hz |
| O (ms) | 14.272 (806 lines) | 13.328 (800lines) | 13.333 (916 lines) | 16.661(1066 lines) |
| P (ms) | 0.106 (6 lines) | 0.050 (3 lines) | 0.044 (3 lines) | 0.047(3 lines) |
| Q (ms) | 0.513 (29 lines) | 0.466 (28lines) | 0.568 (39 lines) | 0.594(38 lines) |
| R (ms) | 13.599 (768 lines) | 12.795 (768lines) | 12.678 (870 lines) | 16.005(1024 lines) |
| S (ms) | 0.053 (3 line) | 0.017 (1 line) | 0.043 (4 lines) | 0.015(1 lines) |
| SYNC. H/V | - / - | + / + | - / - | + / + |
| POLARITY | | | | |
| SEP. SYNC | Y | Y | Y | Y |

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GENERAL PRODUCT SPECIFICATION

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| MODE NO. | 17 | | | |
|----------------|---------------------|--|--|--|
| RESOLUTION | 1280x1024 | | | |
| Dot clock(MHz) | 135.000 | | | |
| f h | 79.976kHz | | | |
| A (us) | 12.504 (1688dots) | | | |
| B (us) | 1.067 (144 dots) | | | |
| C (us) | 1.837 (248 dots) | | | |
| D (us) | 9.481 (1280dots) | | | |
| E (us) | 0.119 (16 dots) | | | |
| f v | 75Hz (75.024) | | | |
| O (ms) | 13.329 (1066 lines) | | | |
| P (ms) | 0.038 (3 lines) | | | |
| Q (ms) | 0.475 (38 lines) | | | |
| R (ms) | 12.804 (1024 lines) | | | |
| S (ms) | 0.012 (1 line) | | | |
| SYNC. H/V | + / + | | | |
| POLARITY | | | | |
| SEP. SYNC | Y | | | |

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3.3.1.3 Horizontal scanning

Sync polarity : Positive or Negative
Scanning frequency : 30 - 80 KHz

3.3.1.4 Vertical scanning

Sync polarity : Positive or Negative
Scanning frequency : 56 - 75 Hz

3.3.2 TV Interface

Color system:
NTSC
PAL
SECAM

White point :

Normal(Natural) : $x=300 \pm 20$ $y=325 \pm 20$
Warm(Soft)
Cool(Rich)

SOUND POWER OUTPUTS:

- Stereo : 2 x 2.5 Watts,

SOUND CONTROLS:

- Volume
- Mute
- Treble
- Bass
- Balance
- Smart sound

- AVL :

- **SOUND MUTE** : When no video recognition on terrestrial tuner signal the sound must be muted.

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TELETEXT (For Europe, AP)

100 pages

BASIC : - TXT on/off

- Hold (Stop acquisition)

- Double height

- Reveal

- Subcode (Clock/time)

- Mix

- Cancel/recall

- Index

- Close Caption, V-chip (For Nafta)

- CC-1 .. CC-4 decoding and display

- TXT1..TXT4 Text mode

- No Extended Data Services (EDS)

- support violencering and checking

- Automatic CC-1 selection at user mute

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Connections

SCART (Europe model only)

Specification : Full SCART according EN50049-1A3

- The sound output signal on the connector must be muted in case of no terrestrial video input.

Connector type : 21 pin black euro connector

ESD-protected : Yes

CINCH A/V, component input (Nafta and A only)

Location : Rear side

Spec. input : - CVBS: Source supplies DC coupled signals 1 Vpp, 75W.

- Audio: Impedance > 10 kW. The input will be overloaded when the signal > 1.5V rms.

- Audio levels:

- Nominal: 0.5V rms.

- maximum: 1.5V rms.

Connector type : - Cinch

ESD-protected : 15kV

HEADPHONE

Option : Yes

Location : Side

Peripherals : Headphones with impedance between 8 - 600W

Features : - When headphone plug is connected, loudspeaker sound is muted.

- Volume control: with the loudspeaker volume.

Connector type : 3.5 mm stereo Jack, with switch

Specifications : - Output: 8 W < 4 mW

600 W < 4 mW

- Sound is the same as from the loudspeakers.

ESD-protected : 15kV

S-video:

Location : Rear side

Input : 75W.

PC-stereo input

- Audio: Impedance > 10 kW. The input will be overloaded when the signal > 1.5V rms.

- Audio levels:

- Nominal: 0.5V rms.

- maximum: 1.5V rms.

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FORM 100-0542N

3.4 Power input connection

Power cord length : 1.8 M

Power cord type : 3 leads power cord with protective earth plug. (NAFTA model)
Europe type power cord (Europe and AP model)

Power adapter: +12V +/- 1V 600mA

3.5 Power management

PC mode

The power consumption and the status indication of the set with power management function are as follows,

| STATUS | Horizontal On | Vertical Pulse | Power Spec Pulse | LED | as normal on | Green |
|------------------|---------------|----------------|------------------|-------|--------------|-------|
| Stand-by | No Pulse | Pulse | Pulse | < 2 W | Flash | |
| Suspend | Pulse | No Pulse | No Pulse | < 2 W | Flash | |
| off | No Pulse | No Pulse | No Pulse | < 2 W | Flash | |
| Power switch off | - | - | < 1 W | Off | | |

TV mode

The power consumption and the status indication of the set with power management function are as follows,

| STATUS | On | Power Spec | LED | as normal on | Green |
|--------------|-----|------------|-----|--------------|-------|
| Stand-by | | < 2 W | | Flash | |
| Power switch | off | < 1 W | | Off | |

3.6 Display identification

In accordance with DDC requirement DDC2B.

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BRAND : PHILIPS

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FORM 100-0542N

- 4.0 Visual characteristics
4.1 Test conditions

Unless otherwise specified, this specification is defined under the following conditions.

(1) Input signal : As defined in 3.3.1.2, 1280 x 1024 non-interlaced mode (80 KHz), signal sources must have 75 ohm output impedance.

(2) Luminance setting : controls to be set to 250 Nits with full screen 100 % duty cycle white signal.

(3) Warm up: more than 30 minutes after power on with signal supplied.

(4) Ambient light: 400 -- 600 lux.

(5) Ambient temperature: 25 ± 2 °C

4.2 Resolution

| Dot rate (MHz) | H.freq (KHz) | Mode | Resolution | V.freq (Hz) |
|----------------|--------------|-----------|-------------|-------------|
| 25.175 | 31.469 | IBM VGA | 640 * 350 | 70.087 |
| 28.322 | 31.469 | IBM VGA | 720 * 400 | 70.087 |
| 25.175 | 31.469 | IBM VGA | 640 * 480 | 59.940 |
| 30.240 | 35.000 | MACINTOSH | 640 * 480 | 66.667 |
| 31.500 | 37.861 | VESA | 640 * 480 | 72.809 |
| 31.500 | 37.500 | VESA | 640 * 480 | 75.000 |
| 36.000 | 35.156 | VESA | 800 * 600 | 56.250 |
| 40.000 | 37.879 | VESA | 800 * 600 | 60.317 |
| 50.000 | 48.077 | VESA | 800 * 600 | 72.188 |
| 49.500 | 46.875 | VESA | 800 * 600 | 75.000 |
| 57.300 | 49.700 | MACINTOSH | 832 * 624 | 75.000 |
| 65.000 | 48.363 | VESA | 1024 * 768 | 60.004 |
| 75.000 | 56.476 | VESA | 1024 * 768 | 70.069 |
| 78.750 | 60.023 | VESA | 1024 * 768 | 75.029 |
| 100 | 68.681 | MACINTOSH | 1152 * 870 | 74.979 |
| 108 | 63.981 | VESA | 1280 * 1024 | 60.020 |
| 135 | 79.976 | VESA | 1280 * 1024 | 75.024 |

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- 4.3 Brightness: >250 nits at maximum contrast and Brightness.
(at center of the screen, Fig. 1)

- 4.4 Image size

4.4.1 Actual display size
359.0 x 287.2 mm

- 4.5 Brightness uniformity

Set contrast at 100% and turn the brightness to Max. (At original color)

Apply the Fig 1, it should comply with the following formula:

$$\frac{\text{Minimum luminance of five points (brightness)}}{\text{Maximum luminance of five points (brightness)}} > 75\%$$

- 4.6 PC White color adjustment

There are two factory preset white color 9300K and 6500K.

Apply full white pattern, with brightness in 100 % position and the contrast control at 50% position.
The 1931 CIE Chromaticity (color triangle) diagram (x,y) coordinate for the screen center should be:

9300K CIE coordinates X = 0.281 0.020
Y = 0.311 0.020

6500K CIE coordinates X = 0.312 0.020
Y = 0.338 0.020

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4.7 TV White color adjustment

There is one factory preset white color $x=300 \pm 20$ $y=325 \pm 20$ for TV RF signal.

Use FLUKE54200 color temp pattern, with TV smart setting set at natural (movies at Nafta) mode.

And color setting is normal.

Use The 1931 CIE Chromaticity (color triangle) diagram (x,y) coordinate for the screen center should be: $x=300 \pm 20$ $y=325 \pm 20$

4.8 TV picture centering.

Use CVBS input with cross hatch pattern to check the picture centering and should be

Left(size)-right(size) $< \pm 3$ mm.

Up(size)-down(size) $< \pm 3$ mm.

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5.0 Mechanical characteristics

5.1 Controls

- Front Control :
- DC power switch
 - Power LED
 - PC/TV LED
 - PC/TV select key
 - TV/Video source select key
 - Up key
 - Down key
 - Left key
 - Right key
 - Enter key
 - PIP ON/OFF key
 - Auto adjust key

Rear I/O :

- PC D-sub signal cable
- DC 12V input
- Tuner input
- SCART input (Europe model)
- Cinch input (NAFTA and AP model)
- S-Video input
- RCA L,R audio input (audio input for S-Video)
- Mini jack PC audio input

Side I/O :

- Headphone output
- Line output

5.2 Unit dimension / Weight

Set dimension (incl. pedestal): 452 mm W X 452 mm H X 200 mm D

Net weight : : 6.3 Kg

5.3 Tilt and swivel base

tilt angle : 0 to 20 degree

5.4 Transportation packages

5.4.1 Shipping dimension/Weight

Carton dimension : 554 mm W X 544 mm D X 255 mm H

Gross weight : 9.3 Kg

| | | | | | |
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5.4.2 Block unit / Palletization (Air shipment)

| | | |
|---------------------|-------------------|------------------------|
| <u>layers/block</u> | <u>sets/layer</u> | <u>sets/block unit</u> |
| 5 | 4 | 20 |

6.0 Environmental characteristics

The following sections define the interference and susceptibility condition limits that might occur between external environment and the display device.

6.1 Susceptibility of display to external environment

Operating

- Temperature : 0 to 35 degree C
- Humidity : 20% to 80%
- Altitude : 0-3658m
- Air pressure : 600-1100 mBAR

Storage

- Temperature : -20 to 60 degree C
- Humidity : 95% max (< 40°C)
- Altitude : 0-12192m
- Air pressure : 300-1100 mBAR

Note: recommend at 0 to 35 C, Humidity less than 60 %

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FORM 100 (5/02)



6.2 Transportation tests

| Standard | | Philips UAN-D1400 | NSTA |
|----------------|--|---|---|
| Drop Test | Height | 76 cm | 76 cm |
| | Sequence | 1 corner 3 faces (-10deg C x 16 hrs) | 1 corner 3 edge (room temp) 6 fac |
| | Test Result | Electrical function ok Mechanical function ok No serious damage on set appearance (room temp/-10 c, humidity 70 %) | |
| Vibration Test | Sequence | (1) PACKAGING 5-200 Hz , 0.73 G , 30 min. for Each axis | |
| | | (2) OPERATING 10-50-10 Hz , 0.35 mm , 30 min. for Each axis | |
| | Test Result | Electrical function ok Mechanical function ok No serious damage on set appearance | |
| Bump Test | For design evaluation only Operating 10 G, 11 msec, 1000 cycles Temperature : 23 C Humidity : 60 % air pressure : 100 kpa (according to DSD draft standard UAN-D636) | | |

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FORM 100 (5/02)



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- 6.3 Display disturbances from external environment
According to IEC 801-2 for ESD disturbances
- 7.0 Reliability
- 7.1 Mean Time Between Failures
System MTBF (Excluding the LCD panel and CCFL) : 50,000 hrs
CCFL MTBF : 50,000 hrs
- 8.0 Quality assurance requirements
- 8.1 Acceptance test
according to MIL-STD-105D Control II level

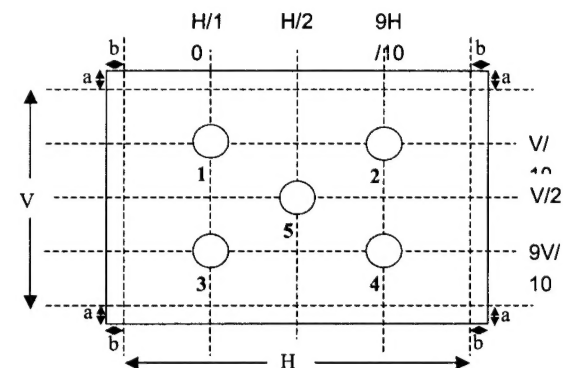
AQL : 0.65 (major)
2.5 (minor)
(please also refer to annual quality agreement)
- 9.0 Serviceability
The serviceability of this monitor should fulfill the requirements which are prescribed in UAW-0346 and must be checked with the check list UAT-0361.

| | | | | | |
|-----------------|--------|---------------------------------|---|-----------------|-------|
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Fig 1: Brightness and Uniformity measure points



| | | | | | |
|-----------------|--------|---------------------------------|---|-----------------|-------|
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| 2002-05-06 | | TYPE : 180MT10P/00C | | BRAND : PHILIPS | |
| NAME Robert Lin | SUPERS | 36 | 590 | — 36 | 10 A4 |
| TV | CHECK | DATE 2002-05-06 | Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E. | | |